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Gleanings in Bee Culture



Apiary of Mr. E. Bondonneau, at Gangeny, in the Department of the Seine and Oise, France.
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GLEANINGS IN BEE CULTURE

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J. J. HURLEY, the new editor of *Canadian Bee Journal*, says in that journal, page 296, "Ontario bee-keepers ought to be proud of the fact that they have among them a man of such world-wide distinction as Mr. McEvoy, of Woodburn. Right you are, friend Hurley; and what a good fellow Mac is besides!"

REFERRING to what is said, p. 1428, about higher price for pure seed, I may say that, years ago, I sowed a number of pounds of sweet-clover seed which had weed seed in it. It is putting it very mildly to say that, if I had it to do over again, I would cheerfully pay \$5.00 a pound for pure seed rather than to have the trouble I have had with weeds introduced.

HOW LONG does it take a colony to discover the loss of a queen? That's a question to which I think I have never seen any definite answer. Of course, circumstances will vary the answer. C. P. Dadant says, *American Bee Journal*, 716, that he "has often noticed it within the hour, though it sometimes takes longer." That gives us something definite for one end of the answer, "often within the hour." Now, how much longer does it ever take? [Dadant is about right. It is our opinion that it will seldom take longer than an hour, if it does that much, for bees to discover their queenless condition.—Ed.]

L. B. SMITH says, *American Bee Journal*, 723, that he has no trouble in keeping a young queen and two or more old queens in the same hive; but with young queens it is a failure. [If he means without perforated zinc, we would agree with him; but when the metal is used, the plural-scheme plan can be worked clear up to and through the breeding season, and up to the close of the honey har-

vest. After that time one of the queens will probably disappear—the one least able to perform the arduous functions of a mother.—Ed.]

THAT A QUEEN caged near the entrance at the bottom of the hive interferes less with the working of the bees than to have her caged elsewhere (Doolittle, 1433), is, I think, entirely new. Looks good too. [In early spring or toward fall, caging near the entrance would be likely to do some injury to the queen, for the reason that she would be left "high and dry"—that is, isolated from the cluster, where she will become chilled. While she will, of course, recover, she will be likely to sustain permanent injury. But this is not saying we do not believe that Mr. Doolittle may not be right on the general proposition as to the effect on the bees.—Ed.]

ADVICE about ventilating bee-cellars, page 1430, is good, only I'm not so sure about one item: "During a very warm spell the outside atmosphere may be very much warmer than that of the cellar. The ventilator should then be used only at night." When warmer outside than in, you may be pretty sure the inside temperature is above 45°—warm enough so bees are using up oxygen pretty fast, and *confined* air is so bad that it may be better to keep ventilation going all day, because warmer fresh air is better than colder foul air. If convenient to have ice in the cellar to keep down below 45°, then it may do to close ventilation. [This question hinges largely on locality. In the quotation referred to we had in mind a temperature outdoors of between 65 and 70, as we often have in mid-winter, when the temperature in the cellar, without opening up, would be somewhere about 50. In that case we would still think that night ventilation would be better than ventilation during every one of the 24 hours.—Ed.]

"I FAIL TO SEE any advantage in feeding syrup as thin as equal parts of water and sugar, even for early feeding for winter stores," says J. L. Beyer, *Canadian Bee Journal*, 300. Friend Beyer, don't you know that the little chemists make changes upon the sugar syrup fed to them so as to make it fit for winter

food? And do you think they can change your "two pounds of sugar to one of water" as easily as they can syrup as thin as nectar? Besides, the "2 to 1" sometimes granulates in the combs unless acid is added (sometimes it does then), and are you sure that you can add the acid quite as well as the bees can? [If Mr. Beyer will test this matter thoroughly and watch carefully he will see that the two-to-one syrup will probably granulate in the combs, just as Dr. Miller says, while the one-to-one product will remain liquid so long as the bees require it; and, what is more, it has been inverted, chemically speaking—that is, digested. Do not understand us to say that such product will be honey. It will have some of the characteristics of honey, but it will be very quickly detected by the chemist, as it should be.—Ed.]

IN THE DUAL PLAN with virgins, Mr. Editor, p. 1448, if "the second queen should not be caged more than two days prior to the removal of the first one," and said second queen emerges from her cell a week prior to that time, what are you going to do with her in the meantime? Seems to me that, if you limit the time of her imprisonment to two days, you cut out the chief advantage of the plan. I've been caging them much longer, and never discovered the harm. What is the harm? [You ask what is the harm. A virgin long caged in a nucleus or colony is too often unfavorably received; and, even though she may be accepted, she may be minus a wing or a leg, and otherwise give evidence of having been through a struggle. The result is, she is not and will not be what she would have been had she been kindly received at the start. The case you suppose is quite possible; but where queens are reared in large numbers, one can, with a perfect system, establish a proportion so that the second queen, with favorable weather, shall not be caged more than two days prior to the removal of the first one. Where only a few queens are reared, such proportion could not be so easily maintained.—Ed.]

"THE INTELLIGENT and up-to-date orchardist does not now spray (because he knows better) during the time the trees are in bloom," p. 1421. Beg pardon, Prof. Surface; but "in this locality" he does—at least he is intelligent and up-to-date in all other respects. [With due apology to Prof. Surface, we should state that the quotation is not the exact wording used by him, but our summing-up of his statement on the point as we heard him deliver it at the convention. Since that time we have seen a copy of the paper, and we find his exact wording is as follows: "In general, no fruit-grower who knows how and when to spray ever sprays any thing while the blossoms are open." Admitting that he does spray while the trees are in bloom in your locality, doctor, we would still insist that he is not intelligent and up to date. This may be due largely to the fact that one manufacturer of spraying-outfits in your State, who, either because of ignorance or because he has a grudge

against bee-keepers, has sent out thousands of pamphlets with his spraying-outfits, advising every one to spray while the trees are in bloom, notwithstanding the experiment stations everywhere, as well as scientific men in general, protest that such practice is wrong in theory as well as in practice, damaging to the bee-keeper and hurtful to the delicate blossoms.—Ed.]

J. E. HAND is quite right in saying, page 1436, that I would not wish to go on record as saying that bees in Illinois are as likely to store their surplus below the brood-apartment as at the sides and above it; and I am sorry that any one should so understand me on p. 948. Undoubtedly their general preference is to store above the brood; but the exceptions I have met certainly do not warrant the statement that they never store below it. If Mr. Hand has never had any experience of this kind I cheerfully accept his word for it; but that does not change the fact that it occurs elsewhere. He says his "statement has reference to bees in a normal state unrestricted by the hand of man." I am not sure just how far that "unrestricted" is meant to apply. I suppose we all do a good deal of restricting—certainly I should say Mr. Hand does. But let me give illustrations of cases that have come under my notice. One year I put under colonies in ten-frame hives hive-bodies of empty combs for the bees to take care of. To my surprise, at that time, the bees did not leave them empty, as Mr. Hand says, but stored honey in them. For a number of years I've used bottom-boards 2 inches deep, with a false bottom, during harvest time, about 1½ inches deep. A good many times the bees have built comb in the space at the bottom of the hives, filled and sealed it, and I'm not sure they ever had brood in it. They were no more restricted than they always are, having abundance of room in the supers. Neither did the bees "quickly remove" this honey, and combs were found unemptied when the false bottoms were taken out in October. With these new facts before you, friend Hand, I think you will hardly want to go on record as saying that bees *never* store honey below the brood.

EDITOR HUTCHINSON endorses the idea that official documents of the National ought to contain no electioneering, *Review*, 301. Right. In the same paragraph he seems to endorse the idea that on Oct. 1 "the General Manager, and one other disinterested member, should count the votes" for nominations of candidates. Wrong. The General Manager is not a disinterested member, and sending the votes to him gives him an undue advantage. Neither is it fair to send the votes to any officer about to go out of office. Mr. France is the man for Manager, but he ought not to be placed in such an unpleasant position. And while I am about it I may say I doubt the wisdom of the rule which says the two persons receiving the highest number of votes for a certain office should be the only candidates for that office. Let that prelim-

inary vote be considered an informal ballot, publish the results, and then let every one vote as he likes. [We indorse all that Dr. Miller has said. The Association should avoid every appearance of evil. And right in this connection we desire to go on record as believing that no representative of a bee-supply factory, nor any of its agents, should be directors, nor hold any other office in the Association. While this very class of people has undoubtedly helped to build up the organization to its present strength and efficiency, we believe the time has now come when their services are no longer needed. We advocated this principle some six or seven years ago, and in conformity therewith refused to serve as director, though twice elected on two different occasions. We are sending a marked copy of this journal to each member of the Board of Directors, urging that they lay the matter before the members for their consideration; and we would suggest that, a year hence, the matter in the form of an amendment to the constitution be submitted for vote of the members at the next annual election. In bringing this up we do not wish to imply that any supply man as an officer of the National has abused his privilege; quite to the contrary; but the principle is wrong, and the organization should steer clear of any appearance of an "ax to grind." We do not believe it is necessary nor wise to bar out editors or publishers of bee-papers if they are not otherwise connected with the supply business.—Ed.]

LET ME GIVE YOU a statement from an editorial in the *Chicago Record-Herald*, which is no prohibition paper, but a leading daily well patronized by liquor advertisements. Here is the statement, which is as good a summing-up of the present situation as I have seen:

A list of the States that are "dry" or partly "dry" would be practically a list of all the States in the Union. So rapidly has the movement been spreading of late that it would be difficult to keep up with the facts were it not for the prohibition leaders, who provide ever revised tables of the status. When Oklahoma enters the Union and the Georgia law takes effect there will be five prohibition States. In Tennessee there are no saloons outside of four municipalities. In Kentucky, only four counties are wholly "wet," and only 22 out of 119 have any saloons at all. In South Carolina most of the State is dry, and elsewhere the county-dispensary system prevails. In Alabama there are 27 dry counties. In Ohio, 1140 out of 1376 townships and 60 per cent of the municipalities are "dry." And so it goes.

[Similar statements, only more extended, have appeared in different papers throughout the country. Verily it is evident that the great newspaper world is beginning to wake up to the fact. The *Saturday Evening Post*, a magazine that probably has as wide a circulation as any weekly in the United States, contains an article in its issue for Nov. 9 entitled "The Battle of the Bottle." Some very interesting facts and statistics are given, and then follows a deadly parallel showing the difference between dry and wet territory as to the amount of crime committed. We quote two paragraphs which are right in line with those taken from the *Chicago Record-Herald*:

Beyond this you fear that prohibition will lessen your labor. *It will.* It will surely diminish the number of convicts now employed in your mines. That enormous force of convicts who are working for you in the mines serve as a permanent strike-breaking nucleus to hold the labor unions in check. A convict can't strike, he can't quit, can't get away. Convicts help to fix the wages of free labor. The convicts from liquor counties are twice as numerous as those from dry counties. These very convicts have recently given out a statement showing a startling number whose crimes were caused by whisky.

Compare prohibition Maine with Alabama. Maine last year killed two persons by murder. In Alabama, with twice the population of Maine, during the last four years there have been 1381 cases *come to actual trial*: 328 were not convicted; 78 were sentenced to death; 330 convicted in the first degree; 205 in the second degree; 440 of manslaughter. In 1906, 1132 of Alabama's convicts were in prison for murder, assault with intent to kill, and assault with weapons. Such men form part of the labor in the mines. Alabama has 2600 convicts; Maine has 186, white. Prohibition will undoubtedly decrease this class of labor.

And yet, strange as it may seem, there are many people in Maine, and some good ones too, who think prohibition in their State is not a success. Because they find an occasional blind tiger or an occasional drunken man in the streets of their cities they conclude the great principle of State-wide prohibition is a failure. They might just as well argue that, because there are murders, the law against murder should be repealed.—ED.]



ON account of the crowded condition of our space in this issue our Harrisburg National Convention Report is omitted from this number. We hope to resume it in our next issue.

W. L. COGGSHALL, of Groton, N. Y., who possibly owns as many or more bees than any other bee-man in the United States, writes that he expects to spend two months at 680 North Madison Ave., Pasadena, California, probably for his health. Pasadena is right in the heart of some of the best bee country of Southern California; and we are sure there are many bee-keepers in that vicinity who will be glad to meet their distinguished fellow-craftsman from New York.

WE have been favored with a copy of a very nice paper-bound book of 140 pages on the subject of bee-keeping in Spain by modern methods. The author is Señor M. Pons Fabreques, editor of the Spanish bee-journal *La Apicultura Espanola*. The name of the book, "Nueva Cartilla del Apicultor," indicates its mission, and the writer is evidently well grounded in the modern methods of keeping bees, for the hives, etc., which he recommends and illustrates are up to

date. He particularly shows how to make comb foundation, both on presses and mills. The book is well printed and illustrated on good paper, and is altogether creditable, both to the author and publisher. It is published in Barcelona. W. K. M.

THE two great bee-keepers' associations of Germany and Austria-Hungaria have decided to amalgamate, sinking all differences which may have existed between them for the past ten years. The combined membership of the two societies is 100,000, which will, in all likelihood, be very largely augmented by the increased prestige. The name of the society will be *Der Deutsche Imkerbund* (the German Bee-keepers' Society). GLEANINGS wishes the new federation long life and prosperity.

There isn't room for two national bee-keepers' associations in one country, and the German-speaking people are wise in recombining. The next meeting will take place at Buckawina, in Austria. W. K. M.

KEEPING COMB HONEY DURING THE WINTER MONTHS.

PRODUCERS should take pains to inform retailers over and over again that they must not store their comb honey down cellar nor in a refrigerator, but that it should be kept in a dry warm room at an even temperature. And in this connection it is well to remark that a temperature varying from 70 down to freezing will cause honey to granulate much quicker than a continued freezing temperature. But we should not argue from that that comb honey should be kept in a cool place—better by far that it be kept at a uniform temperature as near that of a living-room as possible.

Comb honey will stand a little freezing, but not very much of it. If it is to be sent by freight, if possible shipment should be deferred while it is below freezing. That is one reason why all comb honey should be moved to points of local consumption before cold weather comes on.

THE WANING OF THE COMB-HONEY LIES.

WE wonder if any of our readers have noticed that there has been but little said about manufactured comb honey in the papers of late. We have seen only one item, and that is to the effect that an artificial syrup has been made which, it is thought, would analyze the same as honey. But the chemists are able to detect this product without fail. Of course, it does not taste like honey, does not look like it, and lacks the delicate aroma of the product direct from the flowers.

But how about the disappearance of the comb-honey lies? It is because, in our opinion, the national pure-food law has gone into effect, and the purveyors of these erstwhile canards know that they can no longer jam them into a gullible public, because the national pure-food law would not allow this

so-called manufactured product to be offered for sale. The best answer that we can give to show that there is no such thing is that Uncle Sam would not allow it to be sold, and that is reason enough.

A NEW PLAN OF PUTTING UP COMB HONEY IN SECTIONS.

ELSEWHERE in this issue we publish a very valuable contribution from H. A. Sackett, of a plan for putting up comb honey for retail in transparent paper so that not only the comb shall be protected but that the honey shall show as well. The plan involves but very little expense, and we feel sure it will be the means of securing a considerably increased price on honey put up in that manner. It retains to a great extent the advantage of glass for sections without its expense.

During winter evenings a bee-keeper and his family can prepare a large part of his comb honey in this way; and if he can add a cent or two per pound by so doing, he will be well repaid. A very neat, pretty design on the outside of the transparent paper will also help to enhance very greatly the appearance of the package.

It is to be regretted that the photos come very far short of showing the beauty of the package. Why, a dark or a travel-stained comb looks much better behind the haze of the beautiful transparency than it does uncovered. Try and see for yourself.

THE HONEY MARKET; HONEY FOR MANUFACTURING PURPOSES GROWING SCARCER, AND WHY.

THE late stringency in the money market has had a tendency to depress prices on nearly all commodities, including honey. Then, too, the approach of the holidays has had its effect. During Thanksgiving and Christmas the delicacies seem to be cranberry sauce, mince pie, and turkey, while honey which has been on the table for months back seems to be relegated, for the time being, to the background. But this year there has been such a great scarcity, that it is our opinion the market will recover itself, and that we shall not see this year the usual slump in prices after Jan. 1st. It is true that there is quite a little Colorado honey left in the eastern markets. This, we believe, to a great extent will be gone by the beginning of next year.

As indicative of the scarcity of honey for manufacturing purposes it appears that the National Biscuit Co. is advertising for honey—something it had never done before—in fact, it did not have to. See our advertising pages. So, taking it all in all, especially since the national pure-food law has gone into effect, we expect to see a firm market all of next season on all grades of honey for both comb and extracted. Even should there be a good year there will be no adulterated honeys to depress the market on pure goods as formerly. Never again do we expect to see honey go back to its old level.

GETTING IN THE FACTS ON SUGAR.

THE United States Department of Agriculture has finally decided to conduct an exhaustive inquiry into the present methods of manufacturing sugar and molasses, and a staff of experts will proceed soon to the sugar-plantation of Messrs. Holloway & Holloway, in the neighborhood of Plaquemine, La., where a course of experiments will be conducted with the view of settling certain mooted questions that are now discussed in connection with the national pure-food law.

At first Dr. Wiley intended to direct these experiments under his own personal superintendence; but Secretary Wilson has decided he can not be spared from Washington just at present. Professors E. M. Chace, A. H. Bryan, and C. E. Dodge, of the government pure-food staff, will conduct the experiments, which will be of the most complete kind.

The investigation will center around the presence of sulphites in sugar and molasses, which, advanced pure-food advocates claim, are injurious to the human system; whereas the sugar-men hold these are not injurious in small quantities, probably because it is convenient for them to use sulphuric acid or sulphur in refining their products.

A great deal hinges on the results of this inquiry.

The sugar-makers claim their methods are above criticism; but Dr. Wiley differs with them, and he is known as a sugar-expert. Already there has been a considerable change, and phosphoric acid is again coming into use, though it is dearer. Much of the molasses formerly sold quite freely is now being converted into stock foods, rum, or alcohol. Cane syrup is now being sold without the addition of glucose, and almost all the makers have decided to stop adulterating with glucose.

The results of this inquiry will prove of very great importance to bee-keepers; for should the findings of this committee be directly against sulphites, glucose syrup will have to submit to scientific regulation which will rob it of its power to depress the price of all syrups, honey included.

It is to be hoped Dr. Wiley will be able to "make good" on this matter; at least bee-keepers hope he will succeed in making out his case.

W. K. M.

THE ADULTERATED-FOOD MANUFACTURERS BEING FORCED TO QUIT BUSINESS.

We are informed by a traveling man, one who is in position to know what he is talking about, that one very large concern that has been doing an extensive business in putting up adulterated food preparations, such as cheap jellies and syrup, has been compelled, owing to the action of the new national pure-food law, to close its doors. So long as it could sell its bogus goods under some honest name, and with no law to stop it, it could do a thriving business; but the new law, that absolutely puts a stop to misbranding, has made it necessary for this firm to suspend. Nor is it by any means an isolat-

ed case. Dozens of these concerns that formerly did a thriving business in putting up bogus food stuffs are now compelled to shut up shop.

The question may be asked, "Why could not these same people go into the business of selling honest goods?" Simply for the reason that the consumers who have been paying a fair price for genuine maple syrup and genuine fruit jellies will continue to go to the concerns of whom they have always bought. If these other fellows attempt to put up pure goods, and sell them at a living profit, packers that have always done an honest business would have such a lead that the others would get no show, and consequently one or the other of them will have to quit business.

Henceforth and for ever it is apparent that, when a jar is labeled "Pure Fruit Jelly," it will be a genuine article, or that somebody will be running a tremendous risk; and no one, apparently, cares to take that risk. The same thing is going to be true of syrups and honey, and, in fact, it is so already, and since last October the full force of the law has been in effect. It will be a sorry day for the concern or company that attempts to misbrand any food or medicine.

Of course, it will be true that there will be on the market gelatine jellies, adulterated syrups, and honey; but the label in every case will have to show, in plain type, every ingredient.

THE FEARFUL DESTRUCTION OF OUR FORESTS, AND THE ATTITUDE OF PRESIDENT ROOSEVELT ON THE SUBJECT.

In the various speeches of President Roosevelt in his trip southward, at different places he has referred to the awful waste of our resources in a way that should command the attention of the entire country. In his Memphis speech he said, "We are face to face with the great fact that the whole future of the nation is practically at stake in the momentous decision that is forced upon us. Shall we continue the waste and destruction of our natural resources, or shall we conserve them?" Then he goes on to speak of the destruction of our forests and of the washing-away of valuable soil as a result of this leveling-down of the timber.

Accompanying President Roosevelt on this trip was Chief Forester Pinchot, a man who has given this subject a large amount of attention and thought. Indorsing the President he says, "The United States has already crossed the verge of a timber famine so severe that its blighting effects will be felt in every household in the land." So severe is this famine that he estimates that our supply of lumber at the present rate will be exhausted in about thirty-three years.

It appears that our forests, in addition to furnishing material that we may say is indispensable, has, until late years, prevented to a great extent the washings of the mountainsides that at present carry away valuable soil, and these unrestrained floods rush into

the valleys, bringing destruction and carrying away the fertility of the soil to an extent that is becoming to be alarming in some sections.

At present it is estimated that only about twenty per cent of forest lands are under the control of the government. The rest of it belongs to private capital that looks not to future gains but to immediate returns, no matter what the cost and hardship that may be entailed upon future generations.

But no timber in the world has been cut more ruthlessly than that which is used in hive and section making; namely, white pine and basswood. At the present time hive-makers have to depend upon the odds and ends that they can find in the markets that are too short or too knotty to be used for building purposes; but by cutting around the knots they are enabled to make a fairly good hive; but the time is not far distant when even these odds and ends will be gone.

Not many years hence the supply-manufacturer will have to depend upon some other material of poorer quality, and yet which will doubtless cost even more than the present stock.

The President's trip southward, accompanied as he has been with Chief Forester Pinchot, may have some effect in waking the public up to the importance of legislation that will protect future generations from the waste that is now going on, on private lands. The duty, first of all, on lumber should be removed, and then some restrictions placed on cutting trees which in a few years would furnish treble the amount they now do.

In Germany, for example, there are forest reserves from which it is allowable to cut only trees that have reached their best growth for lumber purposes. All the younger ones are carefully nurtured. Such a policy is being begun in the United States; but, unfortunately, it will be too late to prevent hardship on the future generation.

The great railroads are beginning to see the importance of setting out trees for their future supply of ties, for nothing in all the world is equal to wood for the purpose.

EXPERT TESTIMONY ON SWEET CLOVER AS A VALUABLE FORAGE-PLANT ON THE FARM.

EVERY bee-keeper in the central tier of States should carefully make note of the fact that John M. Jamison, of Ohio, one of the ablest and best-known farmers in America, is strongly in favor of sweet clover as a forage-plant. He grows some himself on his fine farm in Western Ohio, and wishes he had planted more of it this year. See what he says about it in the *Rural New-Yorker* for Oct. 26. Mr. Jamison is a well-known lecturer on practical farming, more particularly on dairy husbandry; and, moreover, he farms on quite a large scale himself.

Mr. Joseph E. Wing, a great authority on alfalfa culture, now advocates growing sweet clover and alfalfa together. He is a large grower on his farms in Ohio and Alabama,

and knows what he is talking about. He says if alfalfa seed has sweet clover mixed with it there is no need of removing it. On the contrary, its presence will prove to be beneficial.

Dr. Thorne, director of the Ohio Experiment Station, at Wooster, has been a pronounced advocate of sweet clover for years, and still sticks to his opinion.

The views of these men carry weight; so if the people in your section are disposed to outlaw sweet clover, call their attention to this statement. W. K. M.

WHAT SWEET CLOVER DOES WITH POOR LAND.

THE following clinching argument in favor of sweet clover as a soil-renovator appeared in the *Oklahoma Farm Journal*. It completely knocks the bottom out of the assertion that sweet clover is a weed, and proves it is the greatest soil-improver we have in this country to-day:

I can not understand why sweet clover should be more detrimental to orchards in Oklahoma than in Kansas. I would have to be shown to believe it. A few years after I came to Kansas I planted an orchard on the poorest kind of Kansas gumbo land, not fit for cultivation. I mulched young trees heavily for three or four years, also sowed it to white sweet clover, partly because lands would yield no returns for cultivating, and partly because an orchard should not be cropped with any thing not a legume, and mainly for bees to work on clover. The orchard grew finely, and produced the finest of fruit on coming into bearing. The sweet clover mastered every thing and grew immensely. It had full possession eight or ten years, when I sold out, eight years ago. Last fall I was there. About half the orchard had been in peach-trees mostly, and the new comer had cleared up half the orchard where peaches had grown, and was growing great crops of corn on that old gumbo land, beating his best bottom land, he said. I was amazed at the sight. He asked me what caused such corn to grow on that land. He said the plow would go right down to the beam in that soil—and he never had manured it. I knew in a moment it was the sweet clover. And there you are. The apple-trees remaining were extra large, and growing magnificent fruit.

I am 73, and too old to plant another orchard. If I had known what I know now, what sweet clover would do to gumbo land, I could have bought 1000 acres of such land at seven or eight dollars per acre, and made it worth seventy-five dollars per acre for growing corn and alfalfa.

Knowledge came too late in my case, but I know nobody will believe such a story without the experience. It is true all the same. And you need not doubt it would do the same trick in Oklahoma or elsewhere. I am not writing for publication. It is nothing to me. I know what my eyes have seen. I only regret that I did not know it sooner. I have a good warm feeling for you and your paper, which is doing good work.

Morris Co., Kan.

D. P. NORTON.

Comments of editor *Farm Journal*:

Unquestionably sweet clover is a great renovating crop because of its ability to grow on soils poorly adapted to plant growth, because it gets down into the subsoil, and because, when it goes down on the land, it adds to the supply of available plant food.

The trouble with it in orchards here is this: Both trees and sweet clover can't grow on the same piece of land this far south and west. Alfalfa does not grow so vigorously as sweet clover, and we have killed excellent orchards, experimentally, by growing alfalfa in them. It's a question of moisture. This year, only the orchards that have had clean cultivation matured good peaches, and are holding their apples to maturity. We must give orchards clean cultivation until July 1; then we may plant cow peas as a winter cover crop and for its renovating value.

A very few of our best farmers use alfalfa as a soil-builder on tough uplands, and report improvement of soil conditions similar to the experience which you relate with sweet clover.



WHY CELLS WERE NOT STARTED.

"I have been following the Doolittle plan for preventing swarming by caging the queen on a frame in the hive, and liberating her after ten days, when the queen-cells were to be cut. I was going to requeen with these cells; but upon looking through the hive there was not a sign of a queen-cell to be found. Will you please tell me why? And if there is any other good way to requeen when working on this plan, will you please tell me about it? When I caged the queen there were eggs and brood in all stages; but at the end of the ten days there were no eggs nor larvae, the brood being all capped over, the most of the cells not containing brood having more or less honey in them."

The above was written by J. Victor Huddle, West Jefferson, Ohio, during the swarming season of 1907.

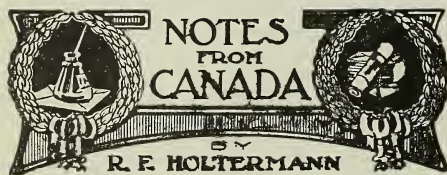
I might answer the above by simply writing the word "location." But Mr. Huddle might feel that I was not giving him all the light he wished, if I did so. Some feel disposed to "poke fun" at having many of the ills of apiculture laid to location, while others feel that location has very much, if not all, to do with the disagreement among beekeepers in regard to the workings of the different plans put forth in our literature which pertains to the honey-bee. My belief is that both sides are partly right. I know that location does play a very important part in many of our experiments and plans; and I also know that very many, in trying the different plans given to the public, experiment so loosely and carelessly that the plans would not work with them as they did with the promoters, even were they in the very same location, and tried the plans at the very same time and in the same apiary. And this is not said as casting any reflection on our correspondent, either. With these few words on location I will give my views on "why queen-cells were not started." The place in the brood-chamber used for caging the queen has much to do with the starting of queen-cells, according to my experience. If she is caged near or at the top of the frames, many more queen-cells will be started than where she is caged in the center of the brood-nest or near the bottom of the same. During the later years, when working on this caging-of-the-queen plan to prevent swarming I always caged the queen at the bottom of the brood-nest, slipping the cage containing her just above the bottom-bar to one of the central frames, wherever I could find a place where the comb was not attached to this bottom-bar, and during some years not a single

queen-cell would be started; and, after one of these years, I told a bee-keeping friend that, if he would so cage his queens when working on this plan, there would be no need of opening hives at the end of the ten days to look the frames all over, for it would be safe to conclude that there would be no cells to destroy—just liberate the queen, and that is all there is of it. We were both so pleased with the saving of the work and annoyance which always attends the shaking of the bees off from all the brood-combs in a hive and hunting up the queen-cells, often in some of the most out-of-the-way places, that we swung our hats in the air and concluded we had made a great discovery which the bee-keeping world had never dreamed of. But with the next year a changed condition existed, right in the very same old location, and in every colony where a queen was so caged, from two to twenty queen-cells were started, and we agreed that we were glad we had not shouted "*eureka*" over the matter so that it might have been heard beyond our own ears. Nevertheless, from years of experience I have found that the rule holds good, that, under all the varying circumstances which come to any locality, many more queen-cells are likely to be started where the queen is left caged at the top of the brood-nest than where she is left near or at the bottom; and if we wish still more cells started she should be caged in the surplus apartment of the hive. The reason for this seems to be that, with the queen caged below or on the brood, the bees do not consider themselves as queenless to the extent they do where she is away from the place they are accustomed to have her when she has her liberty; and so they neglect, under certain conditions, to make any provision for her replacement till the brood gets too large to be fed, and turned over into a fully mature queen. In the above our correspondent and the readers of GLEANINGS have the best answer I am able to give regarding why cells were not started.

And now as to any other good way for getting cells for requeening when working on this plan for the preventing of swarming: I have found that, after any queen has been caged, no matter in what part of the hive she may be placed in, if a frame having a bar of prepared queen-cell cups is given two days later, the bees will go on and perfect those cups into large queen-cells, which, when ripe, will give as nearly perfect queens as can be reared outside of the swarming impulse, or by the plan given in "Scientific Queen-rearing." In fact, under most circumstances, as good queens can be reared in this way as can be reared under any conditions, for this caging is done at a time of year when the bees can rear queens to the very best advantage; and if the queen is caged on the brood, or near the bottom of the same, the bees work at the queen-cells with the same leisure and perfection that they do under the best swarming impulse ever attainable, which has been nature's plan of handing down to us during all of the past centuries the honey-bee of the present; for the direct effort of

man had very little to do with the quality of our bees and queens prior to half a century ago.

It will be noted that Mr. Huddle states that he found most of the cells not occupied with brood, having honey in them when he went to look for queen-cells and liberate the queen. He does not tell us of his success in comb honey from this colony; but with me, where I have found these conditions when liberating the queen, it has always meant a great rush of honey into the sections, if the season held out only from three days to two weeks after the queen began to lay again. There seems to be an incentive in just these conditions which gives section honey beyond almost any thing else, as this unsealed honey is removed from the cells, through the eagerness of the bees to give the queen room for her rapid accumulation of eggs, while this removed honey, together with the nectar coming in from the fields, is rushed into the sections at a rate rarely ever seen under any other conditions; so that we soon have supers filled with the very whitest honey, and that capped to perfection, right out to the very wood of the section all around.



EARLY SETTING-IN OF BEES.

This year I expect to place my bees into winter quarters by the 12th of November. "Early to bed, early to rise," I believe results, other conditions being right, in better-wintered colonies. I have fed, this autumn, sugar syrup to every colony, even if it had plenty of stores. Pollen-clogged combs are not good; pollen-clogged bees are still worse. My intention is that the bees shall have ready access to sugar-syrup stores during all the early part of the winter. In the future the microscope may help us to determine as to the suitability of certain stores for winter.

SPREAD OF FOUL BROOD.

Under "Who Spreads Foul Brood?" the *British Bee Journal*, page 233, *Progressive* writes: "My experience shows that the big people at the hall and the gentry generally are the worst sinners; and why? Simply because they do not realize that they are doing any one any harm. Their gardeners, as a rule, are either too busy to attend to bees, know nothing about them, or are afraid of them." We have a parallel in the many who keep bees in this country, but who rarely look into a brood-chamber. One or two colonies may form a connecting link to spread the disease over a wide area.

WHITE ITALIAN CLOVER.

W. K. Morrison, p. 1385, *GLEANINGS*, introduces to the attention of bee-keepers a new clover. The illustration on page 1384 looks tempting. In our vicinity our bees generally have plenty of clover, but the weather and other conditions are not always favorable. I also find that, even with plenty of clover in blossom, generally the result of frequent rains prolonging bloom in old clover, or bringing on bloom on alsike sown the previous spring, clover rarely continues to yield much. There may be one or more reasons for this.

On page 389, *British Bee Journal*, a correspondent is answered as follows: "No. 2 (last season's honey) has a good portion of honey-dew in it; fermentation has started; but, though unsuitable for table use, it may be utilized for bee-food if, after thinning down a little with hot water, it is boiled for a minute or two, and the scum removed before using." Boiling may have a beneficial effect upon honey-dew. I have never tried it. If I once had honey-dew outside of the hive I would keep it there; and if I had any in the hive for winter stores I would lie awake at night thinking about it. From observation and various reports there is more honey-dew in Canadian hives this season than will be good for the bees.

IRASCIBILITY.

Under the above heading, p. 371, the same journal, M. M. Banff states, "The season of the year, the nature of the flow, the amount of interference they are subjected to, as well as climatic conditions, all go to explain the uncertain temper of bees at times. Race also counts considerably, and the blending of certain races almost invariably produces cross bees." Let me add one very important factor—the distance individual hives are set apart in a large apiary. If hives are set only several feet apart when there are many hives, and there is a heavy flow of honey when bees are with all their strength and energy intent on gathering honey, the flying bees, each aiming for the entrance of a hive, cross one another in their lines of flight. Many are killed outright by striking one another, others only slightly injured; and the latter, not realizing how they are injured, are on the attack, and also give off the poison odor, which arouses the angry passions of other bees. I do not allow my bees to stand any closer than necessity demands—at least not until I have the colonies three steps apart in the row, and the rows four steps apart.

BEEWARE—THE IDES OF.

At college an old March friend, Julius Cæsar, taught me that the Ides of March was a very precarious time for an emperor. It has been left to my old and esteemed friend J. L. Byers, in the *American Bee Journal*, to divulge to the apiarian fraternity that March is also a critical time for a queen. Of course our good friend may have discovered that

there are times in March—yes, oftentimes in March—when to expose suddenly a queen to the atmosphere may result in her catching cold, or in a rheumatic condition when the bees believe the massage treatment may cure or kill, yet I have yet to learn from results (for we mark the date) that there is not weather in March when hives may be opened and the queen clipped. When honey is not coming in, care must be taken, and experience is necessary in opening hives, be it March or any other time. It is a matter of condition, not time.

By the way, our good friend Byers does not deny the gentle imputation that he does not scrape the propolis from hives, frames, queen-excluders, etc., every year. Since we have the subject up, does any one who scrapes these every season have much trouble with propolis? I doubt it.



ENEMIES OF BEES.

It is strange how much strife and contention there is in the world. As we go down into the realms of lower life it is not only "an eye for an eye and a tooth for a tooth," but we see the whole creation warring each on the other, and this through necessity, as the very principle of food-getting demands that one should die that another may live. I have wondered if, in the plan of "One too wise to err and too good to be unkind," this was to gender a spirit of strife and hate, bred in the very bone, as it were—a temper of mind as fixed as it is ugly, that the potency of love might be revealed. We know that, in the highest reaches of creation, love has done just this. If love is the greatest thing in the world, and its conquest of hate and revenge the greatest of triumphs, then was not any thing justified that brought it the largest opportunity?

BEES IN THE FIGHT.

Bees are no exception to this rule of fight or die. They have a great multitude of enemies which range all through the animal kingdom, many of which are very interesting, and some of them are formidable enemies of our pets of the hive. The most to be dreaded are of the plant kingdom, and nearly every branch of animals has a representative among the great army that essay to make the life of our bees miserable and their fate uncertain.

MICRO-ORGANISMS.

The lowest of all the list of bee-enemies, and at the same time the most harmful, are the *Bacteria*, the two species of bacilli which produce the American and European foul

brood. We now know that all rot or decomposition is the result of bacterial attack. All vegetable and animal decomposition is simply the result of an attack of micro-organisms. In this case the bacteria attack dead organisms; but it is not unfrequently true that related species attack living organisms, and with fatal effect, as seen in typhoid and diphtheria. The bacilli of foul brood attack larvæ of the bees in much the same way, and with fully as fatal results. These bacilli reproduce by fission, or simple division, and also by spores, and so multiply with enormous rapidity; and it is this which makes them able to victimize the largest and most vigorous of animals. The spores are more tenacious of life than are the bacilli, and it is this which will permit boiling without death, if very brief, while the bacilli will not endure a heat considerably below boiling without being killed. Fortunately, through a sort of starvation and quarantine process combined we have a fairly easy, safe, and sure way to meet and down these enemies of bees. As this is well known, I will not attempt a description, except to urge all to remember that these bacilli increase so rapidly that the least inoculation will soon bring disaster, and so we can not be too careful in all our work with colonies that have foul brood. In case the bees are not gathering I would always work under a bee-tent, and keep a large oil-cloth beneath, so no honey could possibly be taken by bees from other hives not diseased. In fact, such caution is not out of order at any time.

The molds that we often see in the hives when they get too damp, and the unpleasant stench that comes with disaster in wintering, are also the result of related forms that belong to the lowest realms of vegetable life. It is not improbable that the latter do their part in the frightful mortality that often attends disastrous wintering in the more severe winters of parts of the North and East of our country. It is more than probable that the drier atmosphere, that is thought to be conducive to greater safety, comes from the fact that these lower plants often must have moisture to live and thrive, and in its absence they are not present to put in their deadly work.

INSECT ENEMIES OF BEES.

There are numerous insects that prey upon our pets of the hive. The bee-moth, the wee bee-moth, the bee-louse, the wasps and ants, the cow-killer, the mantis, the robber-flies, the stinging-bug, and the darning-needles, or dragon-flies, are all sinners of this kind.

THE OLD BEE-MOTH.

This enemy was known, I dare say, before America was discovered, and so, like our bees, came from Europe. It does not kill the bees, but works in the wax and feeds on the pollen, and by its webs is as fatal to the welfare of the bees as though it ate them. The scientific name is suggestive of the work of this pest—*Galleria mellonella*. Its webbed galleries and its disturbance of the bee are well worth suggesting in the name. It seems

probable that the moth does not need to enter the hive, as it is likely that, if the eggs are laid near, the wee larva, or caterpillar, will, as soon as it is hatched, betake itself to the combs, and then commence its work of ruination. We know that strong colonies are little likely to be injured by this bee enemy. He, then, who observes the golden rule of bee-keepers, and keeps all his colonies strong, will have little need to complain of this bee-moth. Bee-keeping is now very generally carried on by those who study and think, and so the bee-moth has little place in our work, as no good bee-keeper has any fear of these insects. It is the indifferent, ignorant, heedless bee-keeper who has reason to complain of *Galleria mellonella*.

THE WEE BEE-MOTH.

The little moth known to science as *Ephesia interpunctella* often does mischief in the same way as does its larger congener. It spreads a web of silk over the combs, and lives on the pollen in the larval stage. I have known it to be quite a mischief-maker, but think it too rare an insect to cause any serious annoyance. Like the old bee-moth, it will be little feared by any bee-keeper worthy the name.

THE BEE-LOUSE.

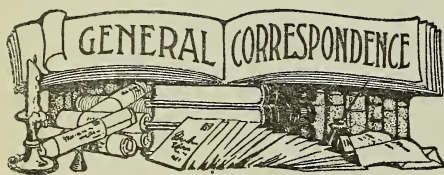
This little parasite, while quite an annoyance in parts of Europe, has never gained much of a foothold in America. It is not a true louse, as it belongs to the *Diptera*, or two-winged-fly order. It is quite closely related to the sheep-tick, and, though it is not fatal to bees, it is a great annoyance to queens, and we may well be glad that it has failed to become acclimated in our American apiaries.

en the recounting of our failures is more helpful than the telling of our successes.—ED.]

Mr. Root:—On page 1369, Nov. 1, you wish to know if we can work two or more queens in a hive at this time of the year. In reply I will say I have just been examining some colonies that contained several queens during the summer, but can now find only one queen in each. This is the same as our experience was one year ago with two colonies. Here we appear to be up against a rock, and it is hard to understand why it is that queens will live in harmony together from the first of May, as some we have had do, until about Oct. 20, and then sting each other. I can account for it only in this way: After the queen has stopped laying about a month she becomes small and more active, like a virgin; then, realizing that she can handle herself much easier than during the summer, when full of eggs, she is ready to grab another queen in mortal combat as soon as she meets one. If this is the case, as our experience seems to prove, then we shall be obliged to separate these queens with queen-excluders near the close of the season. I don't think the worker-bees have any thing to do with stinging these queens after they have been safely introduced. Here is a very important part of this method that we shall have to work out in the future. We are now past all trouble during the spring and summer season along this line, but it may take a long time to perfect some way of keeping them all at liberty in one colony during the winter months. Of those who are trying to winter queens in this way I hope some one will be able to give us a successful report in the spring.

Delanson, N. Y., Nov. 5.

[In our issue for Sept. 1, p. 1137, wherein *Mr. Alexander* gave his method for introducing two or more queens to a colony, and making them live together like a happy family, without the use of perforated zinc, it will be remembered that we expressed our doubts as to whether this felicity would continue after the honey-flow had stopped, and conditions were approaching the usual preparations on the part of the bees for winter. "For," we said, "we would suppose that, after the honey-flow had stopped, and there was a strong disposition on the part of the bees to rob, one or more of the queens would disappear until only one was left." We now raise the question whether it is practicable to practice this dual or plural queen system, even with the use of perforated zinc, after prosperity has begun to wane. It is *then*, according to our experience, that there seems to be a strong disposition on the part of the colony, or the queens themselves, to have only one mother in the hive. *Mr. Alexander's* theory, that when the queens have stopped egg-laying, and therefore they are more active, may explain why the queens are belligerent enough to fight to a finish. But we are of the opinion that the *bees* themselves take a hand in the matter, on the principle that economy and retrenchment are the order of the day.—ED.]



THE PLURAL-QUEEN SYSTEM.

All Queens but One Disappear at the End of the Season.

BY E. W. ALEXANDER.

[It is said that confession is good for the soul; and we might add that the right kind of confession does not lower one's dignity nor diminish the confidence of his friends. *Mr. Alexander* has explained some very interesting and difficult manipulations in the management of bees. He has given us a number of valuable tricks of the trade. If every thing he had told us about always worked out just right, and all his plans had spelled *success* and never *failure*, we might lose confidence in him. While he has never been boastful, yet when he frankly confesses that he did not make the plural scheme work at the close of the season, and even goes so far as to say he is "up against a rock," our confidence in his teachings is increased, because we know that *when* he fails he will frankly tell us so. This article, we feel sure, will be read with more than ordinary interest; for very oft-

A BEE-PROOF VEIL AND SHIRT.

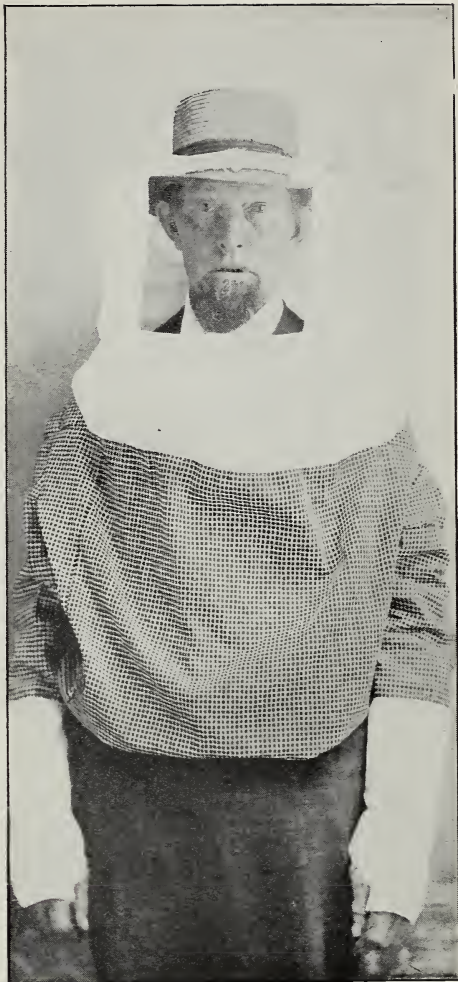
BY D. H. COGGSHALL.

Gentlemen:—With your permission I will give you a description of the bee-veil I use for working with my bees. I find it bee-proof, and there is no chance for bees to get near your neck to sting you. I can work all day during the buckwheat season, and not a bee gets inside of the veil. From gingham an overshirt is made that is even with the shoulders, and the sleeves are large enough to come to the knuckles, where a piece of rubber cord is put in to hold it around the hand. An opening is cut for the thumb. Rubber cord is also used around the waist and hat.

The veil proper is made of bobinet, which can be found at millinery stores or supply houses. It is cotton goods, and very strong. This is attached to the top of the overshirt, and it is large enough to pass freely over the brim of the hat.

For the vision part of it I take a piece of wire cloth (black), about nine or ten inches square, and hem the edges with a strip of oilcloth so that the ends of the wire will not stick through; then cut out an opening in the bobinet so it will come just to the brim of the hat. I make it loose enough so it can be easily put on and off when I want to drink, as the picture shows.

To keep the blouse up on the shoulders I use a piece of rubber tape attached to each



THE COGGSHALL BEE-VEIL AND SUIT.

shoulder of the dress. The wrist and hand parts are made of factory cloth, and coated with paraffine, which fills the cloth and prevents stinging. I find but little use for gloves with this rig.

These photographs are through the kindness of Harry E. Hill while visiting him at Fort Pierce, Florida, March 20, 1907. West Groton, N. Y.

[A bee-veil to be really serviceable should be one that will permit of ready access to the face, that can be easily removed so as to allow an unobstructed vision in looking for eggs and at other times; and, when the weather is very hot and bees gentle, to give freer circulation around the face. This veil complies with these conditions very nicely, but differs in the veils used by the majority of people in that, for the purpose of removing, it drops down off from the head, resting on the shoulders rather than raising up off



THE COGGSHALL VEIL WHEN NOT IN USE, BUT READY FOR EMERGENCY.



CENTURY PLANT GROWING IN OAKLAND,
CALIFORNIA.

from the shoulders and resting on the hat. The general protection to the arms and sleeves is very good.—ED.]

THE CENTURY PLANT IN CALIFORNIA.

BY W. A. PRYAL.

Dear Mr. Root:—The century plant shown in the engraving is growing upon what was a portion of our homestead, now our next

nearest neighbor's. It has been in blossom a month and will probably continue that much longer before it is "all in." The bees just "swarm" upon it during the forenoon. It is the tallest century plant I ever saw—a fact which speaks well for the location I was raised in. In a day or two I am going to get some of the blossoms to photograph, as I have already arranged with a boy to climb the "bean-stalk" to get the flowers.
San Francisco, Cal.

WATER FOR BEES.

How to Prevent Drowning.

BY DR. C. C. MILLER.

I wonder what proportion of bee-keepers pay any attention to the matter of seeing that their bees have any chance for water except as they may find it for themselves. Certainly water must at times be of the utmost importance, considering the number of bees that risk (and also the number that actually lose) their lives in obtaining water.

There is probably no time when it is more important to provide drink for the bees than in the spring. When a bee starts out in a chilly wind, makes a long journey, and loads up with ice-cold water, one might naturally expect that its chances for return to the hive alive and cheerful would not be the best.

Any sort of provision in a regular place will greatly help by saving the long journey and sometimes fruitless search. Additional help will be given if the place is sheltered and sunny. In addition to this, if the water be warm and provision be made against drowning, any reasonable bee ought to be satisfied.

Some claim that the reason why bees frequent cess-pools and other filthy places for drink is because of the warmth of the water found there. In Germany some keep the water warm by a lamp somewhat after the fashion of a poultry-brooder. That is troublesome, yet it might pay. But if water is kept in a sheltered, sunny place, there will be no little gain in the matter of heat.

It has just occurred to me that a solar wax-extractor (which is never used to melt wax in early spring) might be utilized to keep water warm for the bees. The sun would certainly warm the water; then let there be a leak in such a way that the bees would get it before it had a chance to cool.

In many places bees can look out for themselves without making any long journey by visiting watering-places of horses and cattle, also pumps, and these may be the watering-places and pumps of neighbors. Bees in such places are a great annoyance, sometimes starting hard feelings between neighbors. Generally, too, many bees are drowned in such places. To avoid this annoyance and loss it is well worth while to have a special place where the bees may find water all summer long.

But such a place should be provided *before* the bees have formed the habit of visiting a

pump or horse-trough. That habit once formed, the bees will not pay the slightest attention to a new place. They may, however, be enticed away to a new place, if it be only a few feet, or even a few rods distant. Cover up the pump or horse-trough with horse-blankets or something else, so the bees can get no water, and set a vessel of water close as possible. Next day move it just a little away, and each day thereafter move it a little more. After getting a little distance away, you can move it five or ten feet each day. Keep the old place covered up for a few days, and afterward keep water *constantly* at the new place, and there should be no more trouble.

What arrangement shall we have to provide the water? Any pail or tub would do, if bees wouldn't drown. A vessel working on the atmospheric-pressure principle is good—that is, a glass jar turned upside down on a board with little channels so the water will come down as fast as used out. But it needs such frequent attention that there is danger of neglect; and, besides, one doesn't want to give time to such things unnecessarily in the busy season. Whatever is used should hold a goodly supply of water; and then if one aims to fill it up when half emptied, there is not much danger that it will be often entirely dry.

I have used with a good deal of satisfaction a six-gallon stone crock with a small armful

far as I can see it's perfect, and I don't know how long it will last. The tub you see in the illustration was snapped Sept. 17, and had been in use all summer with the same cork chips. It was filled with water whenever it was convenient, or whenever I thought of it; and if that was not for days no harm was done. Of course, a smaller vessel would work too.

Marengo, Ill.

TRANSPARENT PAPER WRAPPERS FOR SECTIONS OF COMB HONEY.

Preventing Leakage and Keeping the Honey Clean.

BY H. A. SACKETT.

Mr. Root:—I am sending you, under separate cover, a sample of the package in which we are sending out our honey this year. I do not know if such a package has ever been used before. Being a printer, and having bees as a hobby, this package occurred to me one day, and I have found it a very good one, and write you, sending sample, so if you think well of it you can publish the same for others to use, it being much cheaper than glass. I should like to hear from you as to it, and want you to be frank.

East Orange, N. J.

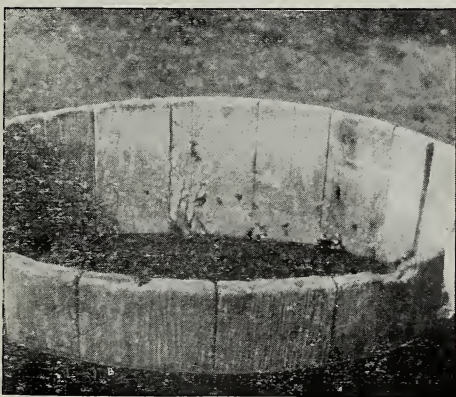
[We were so much interested in this that we wrote Mr. Sackett for further particulars. Compiling he sends the following:]

I procured some transparent paper from a New York house, which I thought would answer the purpose, and which is used by the druggist for wrapping up bottles to keep the labels clean. I had the design made, and printed up quite a few for trial, and the results were so favorable that I wrapped my sections this year, and was surprised that they stood shipping, did not leak out at all, and, after being well wet with honey, seemed to be in good condition. I have had numerous people state that they thought it was better than glass. Every section sent out had my name on, which not only showed where the goods came from but was a good advertisement for myself; whereas if I had used glass no one would know my goods; and where you sell to the local trade it means a great deal to the producer, and will bring him many sales. I trust that some of your readers will try this method, and let us know what results are obtained.

H. A. SACKETT.

[A photograph was taken of the empty section with its transparent wrapper as sent us by Mr. Sackett, and the result is shown in Fig. 1. If the sections had been filled, the surface of the comb would have shown as in the other illustrations. The paper on the other side was printed with Mr. Sackett's name and address.

Since this matter has been brought to our attention, we have done some experimenting along the same line, and have found that ordinary butter-wrappers are very satisfactory



DR. MILLER'S TUB FOR WATERING BEES;
CORK CHIPS ARE USED TO PRE-
VENT DROWNING.

of firewood put into it endwise, and water then thrown in. All the better to have the wood partly decayed.

But the best thing I have ever tried is a tub, or half-barrel, with cork-chips or cork dust thrown on the water. You can get such material from any grocer who gets foreign or California grapes, cork chips being used for packing. Put in all the cork chips you can without getting in so many that the bees can not reach the water. The bees are just as safe walking over it as on the ground; so

for this purpose, although they are not quite large enough for the $4\frac{1}{2} \times 4\frac{1}{2}$ square sections. With a little trimming they answer very well for the 4×5 sections; and so if any one wishes to put up a few sections for trial, butter-papers may be successfully used. If the paper

any leakage should the comb become cracked or broken.

It is possible that the time required to wrap each section would make a rather expensive package; but an experienced person ought to be able to wrap them very quickly if eve-

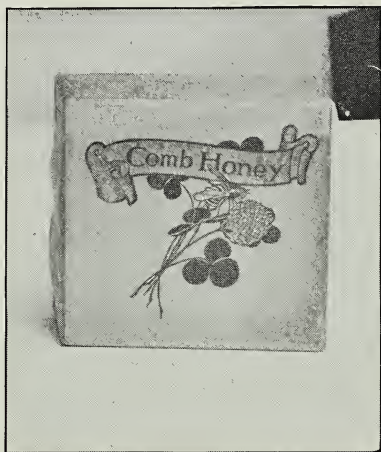


FIG. 1.—A TRANSPARENT WRAPPER FOR COMB-HONEY SECTIONS.

This wrapper was put on an empty section. If the section had been filled, the surface of the comb would have shown very plainly as in Figs. 2 and 3.

is white, the effect is perhaps better, although the ordinary straw-colored paper makes a pleasing appearance.

Fig. 2 shows the process of wrapping the sections, and also two sections that are finished. Mucilage or glue must be used to keep the paper in place, and also to prevent

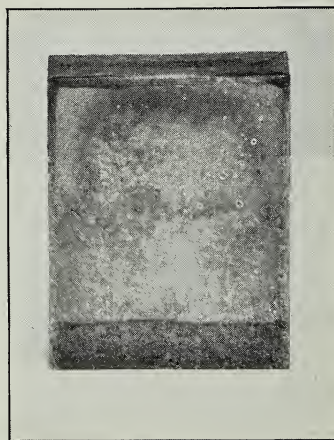


FIG. 3.—THE WRAPPER PREVENTS ALMOST ALL LEAKAGE.

This comb was purposely broken for experiment, and about an inch of liquid honey ran to the bottom as shown. After two weeks a large drop had oozed through the paper, which might have been prevented if a better grade of paper had been used.

ry motion is made to count to the best advantage.

It can not be denied that a section of honey thus wrapped will be absolutely clean, as flies and dust will be kept away; and the

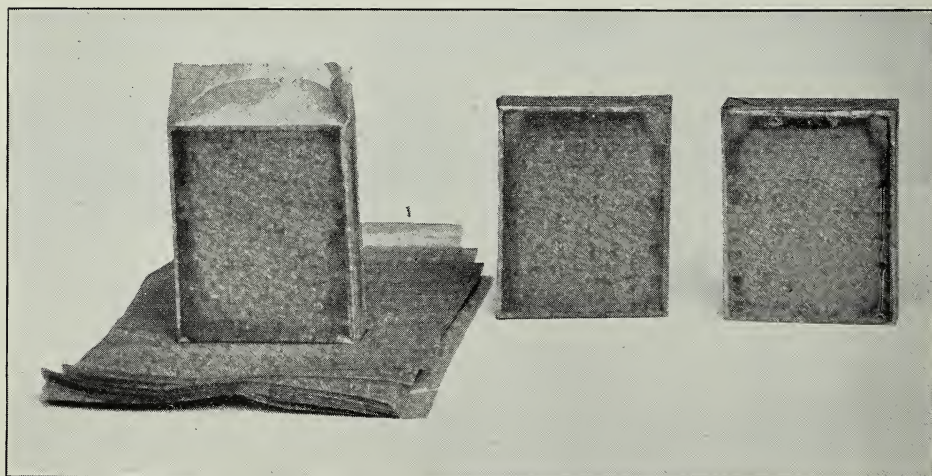


FIG. 2.—HOW THE SECTIONS ARE WRAPPED.

Mucilage is used at the top and bottom to keep the paper from unfolding, and also to prevent any leak should the comb become broken. The two sections at the right show how plainly the comb can be seen through the paper.

greatest emphasis should not be placed upon the cheapness of the package, but upon its effectiveness and practicability. Furthermore, the wrappers permit a saving in several ways. For instance, it is possible that all scraping of sections could be done away with, and it should take no longer to put on the wrapper than to scrape off the propolis. Darker grades of basswood sections could be used, thus cutting off another expense that might nearly pay for the papers and for the printing. Finally, the chances are that the drip cleats and papers could be left out of the shipping-cases. If corrugated paper be used in place of the cleats, there would be very little breakage. Viewed from all standpoints, therefore, the wrapper ought to make an inexpensive package for comb honey.

Fig. 3 shows a wrapped section that was purposely tumbled about until the comb was broken so that the liquid honey ran out. Al-

selection of colors would mean almost sure failure in effect.

All in all, we believe this is one of the best ideas that have been advanced in many a month. We hope many will try it and report.—Ed.]

HIVE-LIFTERS AND HIVE-CARRIERS.

BY JOHN BAILEY.

I am sending to you by this mail photos of part of my apiary and of my honey exhibit at the Agricultural Fair held at Bracebridge.

In the photo of the apiary you will notice the hive-lifter in operation; also the small wagon used like a cart (the back wheel serving as legs) which can be pushed backward or forward with ease without raising the



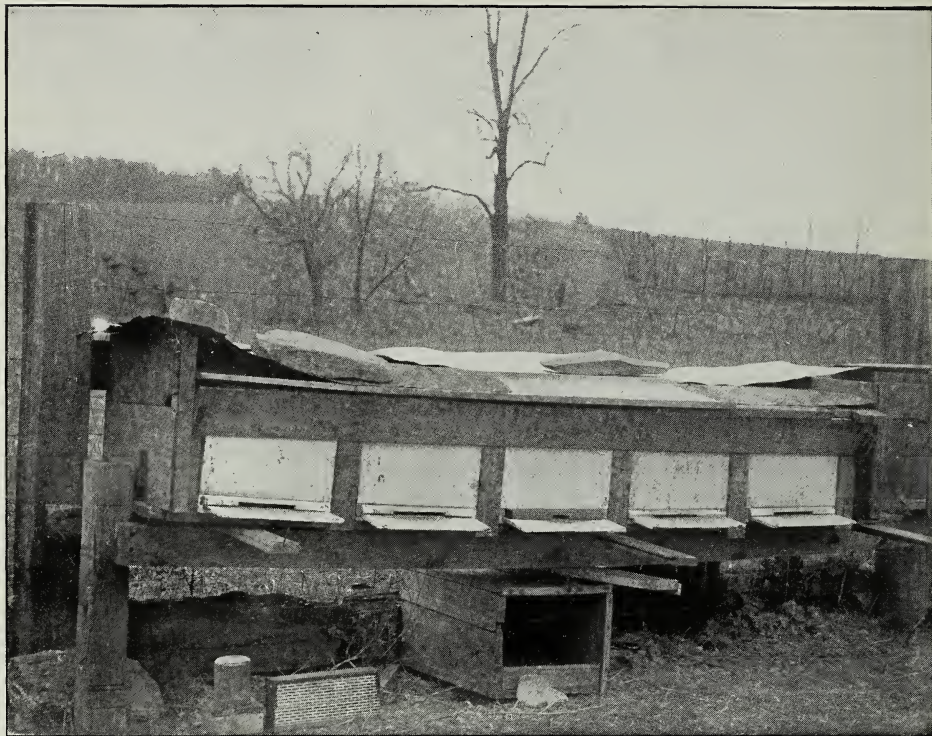
APIARY OF JOHN BAILEY, ONTARIO, CANADA.

This view shows Mr. Bailey's hive-lifter, swarm-catcher, and hive-carts.

though there was at least an inch of liquid honey at the bottom, there was no leakage until it had stood for about two weeks, when a good-sized drop was found that had oozed through the paper. Possibly a better grade of paper would have prevented this. The butter-wrappers seemed to have been made of a so-called onion-skin paper, which showed no evidence of having been waxed, although the name indicated that wax had been used.

If experiments are made, a *good* paper should be obtained and an appropriate design printed on one or both sides. In doing this, care should be taken to select a color that will blend with the color of the paper and with that of the honey. An unfortunate

handles. This wagon has room for five supers without crowding, one resting between horns in front; also a hive-carrier to which I wish especially to draw your attention. You will notice in the photo the hive resting on the handles; and on close observation it will explain itself. The carrier is simply run with the projecting ends straddle of the hive under the cleats. The handles are raised as shown, and the hive carried with ease to the place where required. I find this of great convenience in the swarming season; for while the swarm is in the air, and your clipped queen in a cage, you can rapidly and easily carry away the old hive and replace it with a new one without any awkward or heavy lifting. If you take notice of the first



GEIGER'S METHOD OF PACKING HIVES IN BUCKWHEAT CHAFF.

hive on the right under the smoker you will notice a pair of glasses, which is an excellent protection from robbers.

Bracebridge, Ont., Sept. 30.

[The hive-lifter shown is very similar to Mr. Hand's device illustrated in the Aug. 1 issue for this year, although a windlass is substituted for the self-locking tackle. Both plans are good; and those who believe that hive-lifters are unnecessary should try one and see the advantages.

For a swarm-catcher, a wire-cloth box is usually found to be more satisfactory than a wooden one, for the reason that it is then necessary to shake only a part of the bees into it. If the queen is shaken into the box with the bees, the cover may be put on and the pole propped up near the former clustering-place. In a few minutes practically all the rest of the bees will cluster on the outside, when the swarm may be carried away and hived.

It would seem as though the hive-carts as shown would be very convenient. The scheme of picking up the hives is the same as that used by H. R. Boardman and illustrated in the old edition of the A B C of Bee Culture. Mr. L. E. Mercer, of California, makes use of the same general plan of a cart or barrow, only he goes still further and uses wheels from old bicycles, with the pneu-

matic tires and all. The one here shown is very simple and can be made by any mechanic at a small expense.—Ed.]

COLONIES PACKED IN BUCKWHEAT CHAFF.

BY JOHN P. GEIGER.

The engraving shows my five colonies packed in buckwheat chaff for the winter.

I have kept down swarming by requeening and removing queen-cells. One, however, has swarmed and succeeded in defeating me by escaping to quarters unknown. Now, after hiving a swarm I always put a frame of brood in the hive, and this induces the bees to stay. As I am away from home during the day I can not give them proper attention; but they have yielded honey at the rate of 35 lbs. per colony, selling at 20 cents a pound.

Orwigsburg, Pa.

[Some seasons the cutting-out of queen-cells for the purpose of restraining swarming is very unsatisfactory. You will do well not to rely on this too much.

Although you do not say so, any good dry packing material besides buckwheat chaff would do equally well. Your general ar-

rangement is very good. Of course, it is important that there should be a good roof over the whole.—ED.]

SIZE AND SHAPE OF SECTIONS.

Can we by Reducing the Thickness of them
Successfully Dispense with Separators
or Fences?

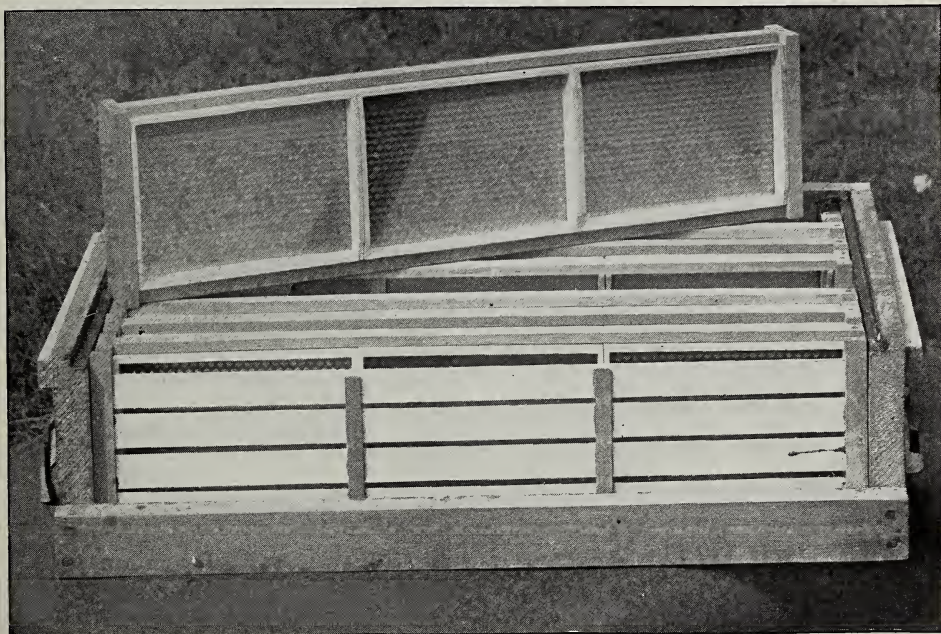
BY J. E. HAND.

Mr. Editor:—We have had the pleasure of a short visit from Mr. W. K. Morrison, of tropical fame; and of the many interesting subjects relating to bee culture that were up for discussion before that convention of two, and the one that remained with us the longest after Mr. Morrison's departure, and is with us yet, is the non-use of separators in the production of comb honey. Mr. Morrison is, perhaps, better posted regarding bee-keeping over a wider range of tropical countries than any other bee-keeper in the United States. He was able to solve the problem of the successful production of comb honey in the tropics by the use of shallow brood-chambers, where it was considered next to impos-

obstacle, even as it is destined to overcome every other obstacle to the successful production of comb honey.

Mr. Morrison also assured us that he was able to produce sections of honey with perfectly straight and even combs without the use of separators by using full sheets of foundation in thin sections. When the $4\frac{1}{4}$ square section was first introduced, this particular size and shape was not adopted because of any advantage over any other shape or form, but simply because eight sections of this size would just fill the Langstroth frame, making two tiers of four sections each. It was found that, in order to have these sections weigh very nearly one pound when filled with honey, it was necessary to make them two inches thick. It was also found that it was not practical to produce honey in these thick sections without separators, as such sections, when filled with honey, would be so badly bulged and uneven that it would be impossible to crate them, and they were used in this way for several years.

Finally it became a noticeable fact that, in using the double-tier wide frames, the lower tier of sections would become soiled and discolored by travel-stain before the sec-



J. E. HAND'S SUPER FOR HIS SYSTEM OF PRODUCING COMB HONEY WITHOUT SEPARATORS.

sible to produce comb honey on account of the peculiarity of the honey-flow and the climatic conditions which caused the bees to fill the brood-chambers solid full of honey, completely crowding out the queen and thus causing the colony to dwindle to a mere handful of bees, and, of course, the shallow frame would entirely overcome this

tions in the upper tier would be finished. This, together with other advantages to be gained by tiering up supers, led to the discarding of the double-tier frame in favor of the single-tier section-super.

About this time there seemed to be a demand for a light-weight section to sell by the piece, and this resulted in the introduction

of the seven-to-the-foot section, as it was called, the same becoming quite popular. It was claimed that honey could be produced in these sections without the use of separators; and, although only $\frac{1}{4}$ inch thinner than the two-inch section, yet honey that was produced in these sections, without separators, could be crated very well; it is true that there would be an occasional section that could not be crated, and it required considerable time to match the fat sides with the lean ones.

Some went still further and used a section still thinner; and, although it was a noticeable fact that, with every decrease in the thickness of the section, the necessity for the use of separators was correspondingly lessened. Such thin sections were not considered practical, from the fact that they were too light in weight, the bee-keeping public choosing to pursue the phantom of the one-pound section that really never did and perhaps never will exist, in preference to producing a thin section of honey to sell by the piece that could have been produced without the use of separators, and for ever do away with the weighing of sections. For these reasons the demand seemed to settle down to the $4\frac{1}{4} \times 1\frac{1}{2}$ section to be used with separators.

At the present time there seems to be a demand for a section that is thinner and of larger comb surface, that will weigh, when filled with honey, about the same as the $4\frac{1}{4}$ thick section. The advantages claimed for such a section are that it presents a larger surface, and, therefore, appeals to the eye as well as to the pocketbook of the prospective purchaser; in short, it is a better seller because it looks bigger in comparison with the square thick section. Admitting that this is true, if there were no $4\frac{1}{4}$ square sections with which to make the comparison the difference would not be noticed, therefore the argument that appeals the strongest to the producer of honey in favor of the thin section of greater comb surface, is the fact as stated by Mr. Morrison, that, if they are thin enough, no separators will be required to produce honey with combs perfectly straight and even. I consider this the best argument in favor of the thin section that has yet appeared.

The question that arises at this time is, "Are separators a hindrance to the bees?" While it is claimed upon seemingly good authority that as many pounds of honey can be

produced with separators as without them, and while this may be true to a certain extent during a long continuous honey-flow, yet there is, during a short sharp honey-flow, a noticeable hesitancy on the part of the bees to build comb between separators. I believe that bee-keepers, as a rule, have come to accept the use of separators as a kind of necessary evil that we are obliged to tolerate in order to have our combs built straight and even. Separators are an expensive luxury in more ways than one. In the first place, they cost money, and not only take up valuable room in the super, and valuable time to handle them, but they are a positive hindrance to the rapid building of comb by breaking the cluster up into thin slices, for it is a noticeable fact that bees will build combs more readily when they can cluster in a compact body; and the larger the cluster the faster will the comb grow. It is claimed for the fence separator a better filling of the sections as the result of free passage for the bees through the fences between the slots, and also that the woven-wire separators afford

a still better means of passage for the bees, and therefore that sections of honey built between these separators will be still better filled than will those that are built between the fences. Admitting that this is true, which we can not deny, yet does not this have a tendency to prove that, without any separators at all, the sections would be still better filled? Even admitting, for the sake of argument, that just as many pounds of honey can be produced with separators as without



This illustration, which appeared originally in the *Strand Magazine*, shows five swarms of *Apis Indica* hanging on a store front in Kandy, Ceylon. This seems to be a favorite spot for swarms, as they come regularly. The swarms shown had hung for two months when the photo was secured.

them, if straight and even combs of honey can be secured without them, what excuse have we to offer for their use? The proof of the pudding is in the eating; and we are interested enough in this matter to give it a thorough trial the coming season; and we have decided upon the $4\frac{1}{4} \times 5\frac{1}{2} \times 1\frac{1}{2}$ section, because three sections of this size will just fill one of our brood-frames.

The accompanying illustration will show our non-separator super which takes the $4\frac{1}{4}$ square section as well as the $4\frac{1}{4} \times 5\frac{1}{2}$, and it will also take our brood-frames and extracting-frames. This will greatly simplify our utensils for honey-production, since every brood-chamber is also a section-super as well as an extracting-super, and our brood-frames and extracting-frames are also section-frames.

The illustration also shows a brood-frame

holding three sections $4\frac{1}{2} \times 5\frac{3}{8} \times 1\frac{1}{8}$, and also a frame holding 4 sections $4\frac{1}{2}$ square filled with foundation by our improved method which holds the foundation always in the center of the section, regardless of whether the hive is level or not, and at the same time insures a perfect section of honey firmly fastened to the wood on four sides, and practically free from pop-holes in the corners. This method of perfectly filling the sections with foundation will greatly aid the building of straight combs without the use of separators.

There are two fences on each outside of the sections, affording a double clustering-space next to the sides of the super. This insures a better filling of the outside sections.

Birmingham, Ohio.

[The section which Mr. Hand proposes was used several years ago by the late J. B. Hains, of Bedford, Ohio, who seemed to have arrived at the same conclusions. But a tall section lying on its side will have one edge of the comb better filled than the other—that is, the section, when out of the hive, is stood on end.]

Mr. Morrison has been claiming for some time back that, if the combs were thin enough, separators would not be needed. It must be admitted that there is something in his argument, because all brood-combs (which have no separators) built off from full or half sheets of foundation, are of an even thickness if spaced no wider than $1\frac{1}{8}$ inches from center to center.—Ed.]

FEEDING DRONES TO YOUNG CHICKENS.

BY FRANKLIN G. FOX.

Chickens do not seem to have naturally any liking for bees or drones. You can dump a quart of dead drones from a trap among a flock of fowls, and unless they have been taught to like them they will simply gather around you out of curiosity and view the remains of Sir Drone without sampling his quality. As many apiarists also keep poultry, and all are aware that a chick, to do its best in rapid growth, needs some sort of animal food, either in the form of worms, insects, or prepared beef scrap, it would be a material saving to have the chick educated to eat drones.

This subject had been on my mind for several years; and two years ago, while carrying some drone comb from my bee-yard, which contained drones in all stages, the thought came to me, "Why not give the larvæ to the chicks?" No sooner thought of than tried; so to the brooder-house I went, where there were about a hundred chicks a few weeks old, mothered by a brooder. At first I picked a few larvæ out with a tooth-pick, and soon one chick grew bold enough to sample it. Then he came back for more. Soon the others took the hint, and I could no longer pick them out fast enough. When the larvæ were all gone I pared the heads and cappings off the comb that had drones

nearly ready to emerge. At first they were rather afraid of the large dark fellows; but finding they tasted the same they soon pulled every drone out of his cradle and devoured him.

The following day I took a trap filled with drones to the brooder-house, and, seating myself on the floor, I began to open the trap. Of course the chicks were expecting a treat, and crowded around me quite curiously. Then I pinched a few drones and offered them to the chicks. In less time than it takes to tell it they "caught on," and such a screaming of delight I never heard among chicks before. Why, they climbed all over me in their eagerness to get the drones, and every drone that had his head through the perforated zinc lost it in a twinkling. I just slid back the trap-lid and the chicks caught, killed, and devoured the drones as fast as they could crawl out. They also ate the dead drones with as much relish. Not knowing what the result might be of this new feed, no more drones were given for several days; but as no bad effects were developed, the feed was continued. You should have seen how the chicks thrived on the diet.

As the poultry can not range my apiary I do not know whether they would have been more effective drone-catchers than my traps or not. These same chicks, when they were put on free range, did not appear to molest the honey-bees as they gathered nectar from the blossoms through which the poultry ranged.

The secret is this: Teach your little chicks to like the taste of drones by first feeding them in the larval form, then gradually lead the chicks on till they eat the drones that are fully developed. After this you can feed them alive or dead as you prefer. However, I believe the former method is more humane.

Erwinna, Pa.

[As I have been somewhat in the chicken business, the above article was turned over to me for my opinion of it. It should have been used some time ago, but it was mislaid. It will come in all right, however, for another season.]

Huber suggested, when he handed me the article, that, although this plan of feeding animal food for growing chickens may be all right, he thought it was a very *expensive* diet. No doubt that is true; but whenever there are drones or drone brood in your hive it is much better to give the chickens the benefit of it than to throw it away as is often done. In transferring from old box hives I have often seen great quantities of drone brood thrown out to rot and smell bad; and I have already discovered that they make excellent chicken feed. Now, then, do not be in haste to permit useless drones to be reared in your apiary; but if you do, utilize them for chickens before the drones are large enough to fly. This reminds me of what an old deacon said to one of his boys when he found they had been disobeying orders by fishing on Sunday and then throwing away the fish, as they feared

his wrath if they brought them home. He called them up and laid down the law thus: "Boys, I want you to remember that it is contrary to my orders to go fishing on Sunday *under any circumstances*." He added, however, but without quite so much emphasis, "But if you *should* go fishing, and catch any fish, by all means bring them home." The latter part of the order would rather indicate that the old deacon, as well as the boys, was fond of fish.—A. I. R.]

BEGINNINGS AND FAILINGS IN BEE-KEEPING.

Failure Due to Not Being Posted; a Hint to the Would-be Inventors of Hives and Appliances; the Importance of Good Queens.

BY C. W. DAYTON.

The home-made utensils and the methods for doing the work the majority of bee-keepers use fall behind in perfection to what has been attained in extractors, engines, foundation and fasteners, smokers, knives, etc., during the last few years.

I might mention, for example, a bee-keeper who uses for a capping-box a five-gallon tin can after having the top removed with a can-opener. He has handled the product of 75 to 200 colonies thus for a number of seasons. It was from his five-gallon can that I obtained the idea of metal to scrape the knife on. I saw that his knife worked better than my own scraped on wood. Another man uses a hive for an uncapping-box, and lets the liquid honey drain out the entrance into any handy receptacle. Another merely spreads the cappings out on boards and permits the bees to sip them dry, while another wheels the extractor through the apiary and stops beside the hives to extract, letting the caps fall into the extractor until the honey and cappings begin to interfere with the baskets, when it is emptied out into a barrel.

There was some favorable appearance somewhere in each of these affairs which led to their adoption; but they should be comprised in a specially devised capping-box.

Now you may say that these specimens do not represent the majority of bee-men. But I believe they represent far more than the majority. It is often estimated that not more than one bee-keeper in ten takes a bee-paper. Ten years ago I knew of twelve bee-men in a certain locality, each having above 50 colonies of bees, and yet not one took a bee-paper, and to-day I know where each one is, and they have not one hive of bees all together. If I should set an apiary there now, there would be no competition except a dairyman who has kept about 50 colonies for 15 or more years, and he has been a reader of the bee-papers. Nearly all of the twelve I mention sought to make bee-keeping a specialty, and I doubt that more than two of them ever had their names on the subscrip-

tion-list of any bee-paper. Had they read the papers they would have known how capping-boxes ought to be made, and their advantages and drawbacks, wastes, etc., and "taken time by the forelock" and prepared the box as it ought to be, and had it in waiting when the honey season arrived. If they do not get the books and papers, and read and study upon such things, how are they to know? Can we expect an ignorant man to invent a whole outfit out of his own head in one year? They take to papers more readily than books; but that does them but little good, since they learn in such small pieces, and they do not know how nor where to attach them together, and they can not sort out and arrange what is in the books, because there is so much of it together that it would require experience from end to end of the actual work in order to do it.

A half-hour or less snatched from the noon hour, or while resting a work-team, or a thousand and one other nicks of time which occur to every worker, will suffice to make one master of any trade or profession there is going if followed out for a reasonable length of time. Time, that commodity so many complain of having too much of, is the principal element, as it enables the digestion of his reading to go on night and day. The one who would become a good bee-keeper would make a good almost any thing, as it depends upon the perseverance and obstacle-climbing which train the nerves and strengthen the sinews to any attainment. There is no *real* short way except by chance.

The twelve bee-men failed because a part of their management was left to chance. They could "drive" a good bargain in buying bees or supplies; they could move bees safely from one place to another, or prepare honey-receptacles in the requisite order, and they possessed abundant strength to harvest the crop; but all these did not bring success. In good seasons they divided the colonies to make increase, allowing the divided colonies to rear their queens from brood. Then when a poor season followed, these brood queens were preserved instead of taking time to replace them with new queens from choice stock, thus retaining the poor queens until the second season. Let the season be never so good, and this class of queens seldom build a colony up to good working strength; and if they are helped by taking brood from the best colonies the brood is no better than wasted, while it pulls the good colonies down to the level of the poor. In a poor year, colonies having such queens are not worth feeding. I simply let them starve out unless I am able to change their queen. The advantage of specially reared queens can not be appreciated nor realized unless the good and poor are seen working side by side.

I stated that the cause of their failure in business was the failure to rear queens. If they had studied the books and papers they would have found more stress laid upon the rearing of queens than upon any other part of the management; and as they read or studied they would have become impressed that

queen-rearing was paramount to every other operation.

Another reason for their failure was that they did not start right. That is quite evident. They made no calculations on starting until they felt the need of money. Some people never think to plant a garden until they need the vegetables on their table or they see some neighbor's table provided with vegetables. By that time it is too late to plant, and before another year their enthusiasm dies out.

The first move in making a start in any business is to go to some one who is known to have been successful, and learn *how he learns*—not to grasp and bring away what has taken him years to accumulate. We are sure to come away empty-handed. His success will be found to be a long routine of cares and attentions, so small, indeed, that the beginner is almost sure to overlook or ignore them. The advice that he receives is the "same old story" that he has heard all his life—"study." But he has almost forgotten how to study, or has acquired an idea that study is merely a fad for old fogies.

It is my belief that the darker bees of Italian and other strains will store more honey, and in better shape, in the combs in a good flow than the yellow bees; but the dark-colored bees will starve to death in a time of scarcity while the yellow ones are getting a fair living, thus better enabling the apiarist to rear queens and improve stock during poor seasons, and have young vigorous queens on hand when a good season finally arrives.

Chatsworth, Cal.

HOW SWARMS CHOOSE A LOCATION.

A Few Incidents to Prove that Scouts are Sent out after the Bees are Clustered.

BY G. C. GREINER.

If I am not mistaken, it is the general opinion of all experienced bee-keepers that young swarms, before leaving the old premises, send out scouts in search of a suitable place to start housekeeping again. I have always kept a number of decoy hives scattered in and near my apiary to catch stray swarms. The result has been quite gratifying. Almost every year I have had one or two such swarms take up their abode in one of these hives, and occasionally one of my own swarms would hive itself in one of them. My experience during the last twenty-five years or more has established the "scout" theory—a settled question in my mind; but not until this past season did I have the opportunity to make observation along this line that may be accepted as positive proof.

The condition of my apiary during the fore part of the season was something like this: After a heavy winter loss, which, by the way, made itself conspicuous after the 25th of March, when all my bees, with very few exceptions, brought pollen freely, a large share of my outfit consisted of depopulated

hives scattered all through the apiary. As soon as any colonies were discovered missing, their hives and combs were thoroughly cleaned, combs containing honey of any amount sorted out, and the hives with the empty combs left on the old stands. The entrances of all these hives were left open full width, and in walking through the yard a very few bees could be noticed going very quietly in and out of some of these hives at any time. In the forenoon of June 10th I noticed at one of the hive an uncommon commotion. A dozen or two of bees were running in and out of the entrance in a seemingly greatly excited state of mind. Some were on the sides and back trying every joint to find an entrance, and the whole affair had the appearance of a very severe case of robbing. At first I mistrusted that some of my bees had found overlooked honey that caused them to make this display, but found, on opening the hive, that that was not the case. Instead I noticed another dozen or two running up and down the combs in the same excited condition. I also noticed, what afterward proved to be conclusive evidence, that all the bees were a very fair type of Italians, not one black one among them.

As I was quite interested in their queer behavior I watched them all the afternoon and forenoon of the next day, without seeing any change on their part. About two o'clock, while looking at them again, I heard in a southerly direction, where, at a distance of half a mile, an elm grove is located, a faint rumbling noise, and at the same time a few flying bees made their appearance. The rumbling as well as the bees increased at a rapid rate, and in less time than it takes to write it I was surrounded by a swarm of bees. After circling around for a few minutes they began to thicken over the hives of the previous excitement, and soon this one and the adjoining ones were covered with bees. As they began to enter, their preference seemed to be centered on that particular hive. The few that had entered the others soon left again and joined the multitude, where, almost instantly, house-cleaning was made the order of the day. The swarm proved to be of the same type as the bees that had been to work at the hive before they arrived—purely marked Italians.

A few days later, June 16, just the same incident took place, with the exception that the scouts were black bees, and that the swarm came the same day that I had noticed them investigating another hive. They arrived at about the same hour, between two and three o'clock. The swarm as well as the scouts tallied with one another. They were all of black German blood.

It may begin to look like a big story when I say that, two days later, a third swarm adopted another one of my hives for its home under similar circumstances. Nevertheless, this was the case, and I have to stretch it still further. A fourth one came to me the 23d, and still another the 7th of July, making all in all five swarms that availed themselves of my hospitality during this season.

The facts which I have gathered in connection with this subject would indicate that, as a rule, bees cluster before they send out scouts; or, if scouts are sent out before they swarm, they cluster before they leave for their new home. Although some of my own bees took possession of an empty hive directly before clustering, my observations during this campaign seem to oppose our accepting it as a rule. All five swarms arrived here in the afternoon between two and three o'clock, after they had plenty of time after swarming to cluster, send out scouts, and wait for their return before leaving, while all my own young swarms issued in the forenoon. The latter all clustered in the usual way, waiting for me to provide homes when they all had the same chance to help themselves to any of my empty hives as the stray swarms. If scouts had been in search of a home before swarming, why did my swarms, or some of them at least, not have themselves?

This would show that sending out scouts is a matter of compulsion. If bees are neglected by their master, and left hanging in a tree indefinitely, they have no alternative but to provide a home of their own. Then is the time when they make use of the scouting gang; and as soon as they have found a suitable place, and have communicated the news to the clustering swarm, away they go, and no common means will stop them.

Sometimes I had swarms leave for parts unknown after clustering, when I was a little too slow in getting ready to hive them. In such a case scouts might have been out before swarming, or else they ran across something suitable in short order; but the swarm clusters before leaving, just the same.

As an exception it may be stated, and I had a little experience in that direction too, that young swarms "light right out" without stopping to cluster. Then, of course, it may be accepted as a probability that scouts had been successful in finding and preparing a home before the swarm issued.

There is still another case in this connection that might be mentioned. Once in a great while a swarm, after being hived in the customary way, and remaining seemingly contented for a day or two, will unceremoniously leave for other quarters. If their scouts had been sent out when the swarm first clustered, they would have been on an exploring expedition a long time—too long to make it seem probable. Besides, tracing the swarm to its new location, which may be some distance from the old clustering-place, might cause them some trouble. I am rather inclined to think that, during their brief stay in their new home, they became discontented for one reason or another; and, to gratify their notion, scouts had secured a place more to their liking. That they knew where they were going when leaving, would be an acceptable conclusion from the fact that I have followed them directly to a hollow tree.

The number of bees that are detailed for scout duty by the swarm, I have found to range from fifty to seventy-five, with every one of my first three swarms. If other gangs

are employed at the same time in different places, the above numbers would be increased accordingly. I can not give particulars in regard to the other two, as I was not present when they made their display, but found them in proper working order at night.

La Salle, N. Y.

[You have raised a rather interesting question, and given us some data that help to throw light on it. It seems to have been tacitly implied that the bees cluster before going away from the vicinity of the old home with a view of sending out scouts; but so far as we can recall, no definite data have been brought to bear on the proposition. We shall be glad to hear from others; and while it may have no practical bearing at first sight, it might lead to some important results.—Ed.]

FEEDING FOR WINTER STORES.

How Much Syrup is Consumed by the Bees During the Process? an Interesting and Suggestive Experiment.

BY O. S. REXFORD.

Friday evening, Oct. 4, I set a colony of bees on scales, weighed them carefully, and then fed them 8 lbs. of granulated sugar dissolved in 7 lbs. of water. I fed in a Miller feeder. The feed was all taken in 24 hours. The shrinkage in weight went on rapidly for about two days, and then slowly for several days till finally, Oct. 13, hive and bees weighed only 4 lbs. more than before I fed.

There was a young queen in the hive, but brood-rearing had stopped several days before, and there was no brood except what had advanced beyond the feeding stage. I looked over the frames yesterday, but saw no eggs or young brood.

If this were the only experiment I had ever made I should not consider it important enough to publish; but I have made many in the last 15 or 18 years, and always with similar results, all seeming to show that bees do consume a large per cent of sugar as honey fed them for winter use, or to store in sections—in this trial, 60 per cent—when I know that, if not fed, one pound would have been sufficient for the whole month of October.

Just here I am reminded of some experiments made by bee-keepers of note. These experiments given in GLEANINGS, by Adrian Getaz, page 532, 1905, seem to show that in feeding back for winter stores, or any other purpose, we must allow for a consumption of about 1½ lbs. per day during the time they are kept active storing and sealing; and if a small amount only is fed, say 5 to 10 lbs., probably 60 per cent or more will be consumed.

This is rather discouraging to those of us who have colonies needing 8 or 10 lbs. more winter stores.

Winsted, Ct.

[There have been numerous reports showing that, in feeding back, a large part of the

stores are actually consumed by the bees. It appears that, during a period of plenty, bees will consume more than at other times; and it is possible that, in feeding bees in the fall, there is considerable loss; but we hardly think it is as large as your figures show, as there must have been other conditions to account for so great a waste. We should be glad to get reports from those who have conducted experiments along this line.—ED.]



COLONIES WINTERED OUT OF DOORS WITH THE ENTRANCES ENTIRELY CLOSED.

I have noted with interest what J. E. Hand and others have said about the effect of moisture, small entrances, and ventilation upon colonies wintered upon the summer stands.

I wintered two colonies outdoors with entrances $\frac{1}{2} \times \frac{1}{4}$. The brood-nest was smaller than in an eight frame Dovetailed hive, and was especially prepared to keep out cold. The covers and bottom-boards were double and packed. These colonies came through the winter in perfect condition.

Wishing to test the matter still further, last winter I entirely closed the entrance to two colonies in the same quarters and kept them closed except when weather moderated to a point above freezing in the shade, which happened once in about three weeks. These colonies were all right through the winter, and in the spring swarmed two weeks before my other colonies that were wintered in ordinary ways. Even with the entrances closed there was no injurious moisture at any time last winter or the winter before, and I question whether there ever would be if the hives were packed so that no moisture could condense on the cover, and little or none on the sides and ends.

O. S. REXFORD.

Umsted, Conn., Sept. 20.

[It is important to have the entrances to outdoor-wintered colonies contracted down to a small space; but $\frac{1}{2} \times \frac{1}{4}$ is too small unless it be kept clear, for dead bees would accumulate, closing it entirely. While you were successful in wintering two colonies with entrances entirely closed, we would advise you not to repeat the experiment again on too large a scale. Reports have shown that an entirely closed entrance is pretty sure to result in the death of the colony. There are exceptions, of course. Better leave the entrance $\frac{1}{2}$ to 3 or 4 inches, and then put a sort of storm-door up against it, or a lean-to board, *a la* Doolittle, to shut out the light, and at the same time keep the air from blow-

ing directly into the entrance. This should be especially used in the case of all hives with the entrances facing the north, or toward any direction where there is likely to be a strong, cold, piercing wind.—ED.]

THE CHAPMAN HONEY-PLANT OF TWENTY YEARS AGO.

Dear Sir:—I have just been reading GLEANINGS of 1886, and find many references to the Chapman honey-plant. Can you spare space in GLEANINGS to tell us about it now? Was it a success? Does Mr. C. raise it now? Did many bee-men take it up? Did it succeed in Ohio? Does it have to be cut back in order to bloom the third year? I have raised it for several years in my flower-garden, but mine rarely bloom the third year.

W. S.

Springville, N. Y., July 1.

[Friend S., the Chapman honey-plant, like many other plants that bear honey in large quantities, was a success—that is, to this extent: If we could afford to raise any honey-plant for honey alone this would probably be one of the best; but it would take as much land, labor, and manure to raise an acre of the Chapman plant as it would to raise an acre of corn; and the corn, especially at the present price, would be worth much more money. A good many bee-men raise small patches of the Chapman plant, and, so far as I know, it succeeds everywhere. I do not think it would be profitable more than two years. It might yield some the third year as you suggest. In endeavoring to improve a honey locality by growing plants we shall have to confine our labors to plants like buckwheat, rape, and the clovers, that have a market value aside from honey—A. I. R.]

BEE-TREE HUNTING GREAT SPORT.

When I read the article in the March 1st issue, page 322, by Mr. John R. Lockard, entitled "Bee-tree Hunting," it made me want to write to GLEANINGS. Though I have fished and hunted and had all other kinds of sport, yet to me there is no pleasure more interesting than bee-hunting. There is something in it which induces me to try again and again, although I do not have success the first time. When one can get away from work, with a bee-box under his arm, he ought to feel thankful then, if at no other time, that he is alive and can enjoy life and its pleasures.

M. L. MITCHELL.

Granby, Quebec.

TWO QUEENS IN ONE HIVE.

Dr. C. C. Miller should not be too enthusiastic about his two queens in one hive, nor so sure that laying queens will not fight. I have known a good many instances where there were two thrifty young queens in the hive with excluder between the two stories; and although every thing went well for a while until the hive became well filled with brood, or until the honey-flow ceased, one of the queens would then be missing. It is not

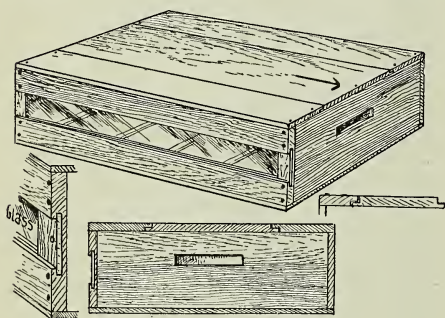
true that queens will not fight after being fertilized. I have tried many times putting from two to six in a cage; and in nearly every instance where the queens were thrifty and vigorous they would fight until there was but one living. When queens are heavy with eggs they usually do not quarrel immediately after being caged; but they won't be so friendly after being caged for some time. I would no more risk sending two queens in one cage, or keeping them together, than to keep two fully matured male hogs in the same pen; yet there are quite a few cases on record where they behaved very nicely.

Deer Plain, Ill.

F. X. ARNOLD.

SHIPPING-CASES WITH SLIDING COVERS.

In handling shipping-cases of sections for sale I find the cover as at present made very unsatisfactory, slipping out of place unless nailed after selling every single section; and for my own personal use I took two pieces



and nailed on the front and back, each having a ship-lap as shown. Then the middle piece is shiplapped, and slides to and fro, forming a tight cover that holds in place however much the case is moved about.

Although I do not use a wedge in my cases, I found some difficulty in removing the first section, but overcame that by putting a thick piece of cartridge paper around one section, with the ends upward long enough to catch hold of, and lift the section out. Directions could be printed on this paper. The difficulty might be overcome by letting the cover run from front to back instead of from end to end. Then the wedge could be removed easily; but the piece of paper for lifting out the first section, I think, should still be used.

H. FITZ HART.

Wetumpka, Ala., April 1.

[Your suggestion regarding the construction of the cover of the shipping-case is a most excellent one, and the supply-manufacturers are urged to adopt the idea. It certainly would be a great convenience to the retailer, wholesaler, and producer. The other idea of using a paper pull to remove the first section is also excellent. It might be well to get up a special "pull" with suitable printed matter on it, and make it an article of general sale.—ED.]

SWARMING EASILY PREVENTED IN COLONIES RUN FOR EXTRACTED HONEY.

As my home is in the country and I am engaged in the city, I have to be away all day; so the plan I have adopted is to try to prevent swarming by putting on queen-excluders, and put on another hive with full combs just like the brood-chamber; and when that one gets nearly full I raise that up and put another underneath. When I get two or three about full I try to get home in the middle of the day and put on some Porter escapes, and after supper they are ready to come off with scarcely a bee in them.

After the honey has been extracted, the frames are put back in the hive-body and taken to the stand whence they came, and, carefully taking off the escape, I stand the hive on top.

When I commenced to keep a few bees my only object was to have a little honey for my family; but as they do not need it all I have no trouble in disposing of all surplus at a good price.

FRANK WANSTALL.

White Plains, N. Y.

BEEES WORKING ON ALFALFA IN INDIANA.

I believe it is generally understood that bees do not work on alfalfa east of the Mississippi; but last week I saw them on a field of alfalfa, as nearly as I could estimate, about ten bees per square rod. Bees were working on sweet clover, alsike, and white clover the same day. The weather had been so wet that the farmer could not cut this alfalfa, and he said it should have been cut ten days before.

GEORGE S. DEMUTH.

Peru, Ind.

[It has been stated that bees do not work on alfalfa east of the Mississippi; and while this is generally true we have had one report from Pennsylvania, and one from another of the Eastern States, showing that there are times when the bees may be found on the plant; but the instances of this kind are comparatively rare. Alfalfa generally does not seem to yield honey unless it grows in the arid or semi-arid regions. Where the ground is irrigated it does the best. In portions of Nebraska, where there is enough of moisture to make the plant grow, some nectar is yielded, but in the East, where there are frequent rains, the alfalfa seldom yields any honey. The roots of the plant seem to require a good soaking, and then a dry spell to yield nectar.—ED.]

GLASS QUEEN-CELL-FORMING STICKS.

The other day I could not find my cell-forming stick. In looking about for something to make one of, my eyes rested on a glass stopper of about the right size. I put it to use, and now I want no more sticks in mine. I can make a third more cell-cups, and make them better with the glass. The cell cups slip off much easier.

Mangas, Cuba.

C. F. HOCHSTEIN.



OUR HOMES

by A. I. ROOT

Righteousness exalteth a nation; but sin is a reproach to any people.—PROV. 14:34.

I have several times expressed my admiration for Hon. J. Frank Hanly, Governor of Indiana. I heard him speak first at the National Anti-saloon League convention at Indianapolis, and a year later at Columbus, O., and also at our Chautauqua convention at Chippewa Lake, in our own county. I think I remarked to a friend after hearing his first speech that I should like to see Mr. Hanly elected to the presidency of the United States; and every time I have heard him since then I have felt more impressed that he was just the man we want for our chief magistrate. When I expressed my views to Dr. Howard Russell he said he had faith to believe the time *would* come when the people would elect such a man as President of this country. There is a large class of people—yes, Christian people and ministers of the gospel—who think it is not best to come right out into the open, even in regard to the liquor-traffic; but, may the Lord be praised, we are just lately finding governors who do not hesitate to speak their convictions right out, without fearing that they may lose the votes of the liquor party. And may the Lord be praised again, that these men do not seem to be losing any votes—at least not on the whole. The men who have broken away, and who have come out fearlessly for their convictions of right and wrong, seem to be just now the particular favorites of the people.

Now, I have not been able to gather from the papers that have been sent me that anybody else feels very strongly just as I do about Governor Hanly. Very likely our great politicians would smile at my suggestions if they deign to notice me at all. Our political giants, or at least those who thought themselves giants a while ago, are beginning to recognize that there are Davids in the camp; and who knows but God may, in his infinite wisdom, see fit to make use of the little pebble that I have thrown out in the way of a suggestion, even as he blessed the young shepherd David when he took a pebble out of the brook, and with the simple shepherd's sling (I might almost say a boy's plaything) brought down the great giant who was defying God's army? These political giants of whom I have been speaking laughed, and indulged in great glee over the matter when the Anti-saloon League was started; but now see what havoc it is making throughout our land. If you do not know Governor Hanly you can get a glimpse of the man by reading a portion of one of his speeches to a body of ministers in Chicago. I wish our space would permit me to give the whole of that great

talk; but I will clip only a part of it from an issue of the *Home Herald*. See if you do not think as I do after you have read it.

The domain to be fought for is this republic—its manhood, its womanhood, its childhood, its institutions, its institutions founded with tears and sacrifice; institutions loved by the fathers and revered by the sons; institutions for which men have died, fondly dreaming they were dying to perpetuate them to the last generation; but the trophy to be struggled for is the stainless flag, the banner of the free.

The foe is the organized liquor-traffic of America. It is an enemy worth while. It has great wealth. It is resourceful. It touches the financial interests of many men. It is desperate. It observes no law—human or divine. It violates legislative enactments. The rules of civilized warfare are to it a meaningless jingle of idle words. Its banner is a black flag. It is an outlaw. Its god is mammon. It has no religion but the greed of gain—no love, no pity. It debauches the best citizenship of town and country. For money it spoils the finest of womanhood. It invades the family circle, overturns the house, and breaks asunder the dearest ties that Heaven ever made. The Christian church of America must meet it or run away. But it will not run away. It must stay and it must fight, and it *will* stay; it *will* stay, and it will fight, not *one* but *hundred* battles. Hear me! If it fights it will need men—men of moral fiber, of sound judgment, and of inflexible purpose—men whom the lust of office will not kill—men who have honor—men who will not lie. The church can win, but it must collect and organize its forces, and bring to bear every influence it possesses; and these must be wisely directed—patience must be exercised. The church must be persistent. The field is too wide and too well defended to be captured by a single charge. It can be won only a little at a time. There are citadels that can not be carried by storm at all; and because these strongholds can not be taken by assault, the church must not refuse to take and hold every point of vantage it may acquire. Every inch of ground is worth while in this contest. Territory won must be garrisoned and held. The church must educate. It must create and keep alive public sentiment. It must lay bare the economic waste and weakness of the traffic—its harm to the public, its injury to industry and enterprise; its awful strain on every vital force of the nation, while the ultimate extinction of the traffic must be the goal toward which it struggles. It must not refuse to regulate and restrict and control; for every restriction, every successful effort for control, means added strength and new adherents. As for myself, I have seen so much of its economic waste, so much of broken-down manhood, so much heartache of the child, and the ruin that the traffic entails upon the home and commonwealth, that I am prepared to strike it anywhere and everywhere when an opportunity presents, in public or in private life. For three years I have witnessed an unending procession of women, mothers, daughters, and wives, coming with broken hearts and in tears to the executive chamber to plead for clemency for loved ones who have transgressed the law, and whose liberty the State has taken away. I have read hundreds of criminal records in my hotel, in my home, in the executive office, and in railway trains; and in eighty-five per cent of the cases the cause can be traced to the excessive use of intoxicating liquors. I was opposed to the traffic before I took the oath of office; but after three years of close observation of the fruits of the traffic I am prepared to state that all I have, all I am, is ready for the task that lies before me. I am prepared to give unqualified approval to any measure looking to the further restriction of the traffic, which I believe to be within constitutional limitations. It was this feeling that impelled me last week, in a public address in Indiana, to pledge my influence and whatever ability I may have to secure an enactment of a remonstrance law that will make the city and the county the unit of remonstrance. It was this that impelled me to say in an address at Columbus, Ohio, not long ago, that whatever influence and ability I could spare to them would be given in their contest in Ohio for a county local-option law, and it is that which impels me *here and now* to make the same promise to you. The principles involved in the right of remonstrance by the voters of a township and city ward are entirely sound. The principle is in keeping with the spirit and genius of our institutions. This, we know, is the people's government—"a government by the people, of the people, and for the people."

And there is no more certain right of a free people

than this, that they have a right to drive this evil from their midst, and say for themselves "Under the law they will continue to bear this waste and admit to the injury to society and public interests and tolerate the increase of crime. That, I undertake to say, is fundamentally right in a free government. In this contest let us not base our campaign for restrictive or prohibitive measures upon thoughtless fanaticism, but upon the duty of the strong to forego their own personal liberty in this regard as they daily forego it in their lines of conduct for the protection of the weak, and, indirectly, for the protection of society and themselves from the countless crimes of drunkenness. It is sometimes said that personal liberty is involved; but it is no more involved than it is when you say to a man in a populous city that he may not drive his vehicle twenty-five miles an hour on a public street; no more than when you say to a man in a populous city, "You must keep your back yard clean for sanitary reasons;" no more than it is when you say to men every day that they may not do this or that because it affects the public welfare. My liberty ends everywhere and any time it touches the welfare and liberty of others. There are people in this country who are unable to distinguish between liberty and license. License is not liberty at its very best. It is the liberty of the assassin, the liberty of a land where might makes right—where he takes and holds who can. Our fathers died to find no such liberty as that. They wanted to establish liberty, but it was found in having its limitations in the welfare of others. So, if the church can organize and unite its membership, and can inspire it with a common and harmonious purpose, and give it practical and sane leadership, the days will be too few in which to number its victories. And in this connection I want to say that the sanest, wisest, most practical leadership the temperance sentiment has in America to-day is the Anti-saloon League. It appeals to every man who believes in the truth involved, without regard to his church or party. A question as broad as this requires a leadership broad enough to appeal to all men everywhere. There is much in present conditions throughout the country to justify confidence and to inspire to renewed effort. The past two years have witnessed a marvelous change in public sentiment—a change so great and so general as to amount to the moral uprising of the Christian people. You know the sublimest thing among men is the moral uprising of a great nation. There is nothing else so inspiring, so majestic, so potential in its effect upon the destiny of the human race as the moral uprising of a mighty nation. A movement seems to be in progress, nation-wide. The wave of sentiment which marks its progress will probably recede; but I pray God it will never again reach the level of old age. Four States—Maine, Kansas, South Dakota, and Georgia—now have prohibition; and Oklahoma, the new star that has crept into this field out yonder, will be more effulgent in its glory because it, too, reflects the sentiment of a State without legalized liquor-traffic. The governors of both Kansas and Maine, who are enforcing the inhibition clause in the constitution, have been reelected. They have made substantial progress. Ninety-two counties in Kentucky, out of 119, inhibit the traffic. In Tennessee it is permitted in only three cities—Chattanooga, Memphis, and Nashville. Illinois now promises much for the coming year; and it is up to the leaders of the Christian church of Illinois to make good the promise. In Indiana, 723 townships out of a total of 1116 have excluded it. There are in Indiana but 393 townships in which it is permitted; 1,300,000 people in Indiana now live in inhibited territory; and we have, through the amendment made two years ago to the remonstrance law, prevented the establishment of more than 900 saloons—enough, allowing 20 feet to each room, to line a street four miles long. When you think of that you begin to measure the power for good this law has been to the people in Indiana. The temperance cause will first be won in rural districts. Then the traffic entrenched in the cities will make its last desperate stand. And we must look to the church with its immense power and influence, its immeasurable potentialities, for aid in this last great battle in the cities of America.

What do you think of the following, which comes from the Washington *Herald*? Is it not about right?

NO TAX COSTS THE STATE LIKE LIQUOR TAX.

In its astounding growth of prohibition sentiment, the South is in harmony with the most progressive

thought of the age, which has come to recognize that there is no money which flows into the coffers of the state so expensive as that which comes from liquor licenses.



"THE BEST MEDICINE IN THE WORLD."

A few weeks ago I received the following letter:

Mr. A. I. Root:—Inclosed you will find the program of a horticultural meeting soon to be held in our apple-orchard, which I believe you would find interesting to attend.

After reading the above I glanced at the top and noticed the letter-head:

H. W. SCHMITKONS,
PRODUCER OF
FRUITS AND HONEY.

"Fruits and honey" make a very good combination; and as I considered that the writer of the letter was probably an old subscriber of GLEANINGS I glanced over the program inclosed; and as it is rather brief I give you here a copy of it:

FIELD MEETING

THURSDAY, OCT. 3, 1907, AT THE ORCHARD OF H. W. SCHMITKONS, NORTH AMHERST, OHIO.

The world of to-day is asking for men and theories that "make good" and those which do not soon lose their prestige. The Horticultural Press, the Experiment Station, and the State Horticultural Society have for years been urging orchardists to spray, and we now invite you to attend a Field Meeting at the orchard of Mr. H. W. Schmitkons, at North Amherst, Ohio, and examine for yourself the results of the spraying done there this season by Mr. Schmitkons in cooperation with the Ohio Experiment Station.

Come and meet with us and hear apple culture discussed, and see the object lessons afforded by this orchard.

A large tent has been secured in which to hold the meeting in case the day should be stormy.

PROGRAM.

TEN A. M.

Cultivation and cover crops	-	-	-	W. W. Farnsworth
Pruning the orchard	-	-	-	F. H. Ballou
Feeding the orchard	-	-	-	W. J. Green

ONE P. M.

Address	-	-	-	Hon. R. B. Lersch
Spraying address and demonstration	-	-	-	H. A. Gossard and A. D. Selby
Harvesting, packing, storing, and marketing the apple	-	-	-	U. T. Cox

An opportunity will be given for questions and discussions.

U. T. Cox, President Ohio State Horticultural Society.
W. W. Farnsworth, Sec'y Ohio State Horticultural Society, and Chief of Horticultural Division, State Board of Agriculture.

Of course I was on hand at the appointed time; but I did not notice any thing particular in the way of fruit until we reached what is called a sand ridge (about four miles from Lake Erie) that rises slightly above the low land surrounding. On that ridge we began to see apple-trees in great abundance; and as we neared our destination we found the trees

loaded with beautiful apples, many of the limbs being propped up.

Let me stop long enough to explain why I was deeply interested. Right close to our home here in Medina we have about 50 apple-trees; but during the past season we have several times gone to the grocery and bought apples to make pies—yes, even though we had to pay 60 cents a peck for them. We did get a few apples later on, perhaps five bushels all told from our 50 trees; but they were so precious that we picked up all the windfalls and cut out the rotten spots and bruised places in order that nothing in the shape of an apple need be wasted.

When I reached this Schmitkons home we found a good-sized tent right in the midst of a very pretty apple-orchard, or, rather, two orchards. The larger one had 20 acres and the smaller one 8 acres; and every tree, so far as I observed in all those 28 acres, was loaded, and the limbs were bending down with beautiful apples, mostly Baldwins. The spraying was commenced by Mr. Schmitkons in 1896. His work finally attracted the attention of the Ohio Experiment Station to such an extent that they have kept a man there during the past season to help and observe.

Under one of the trees near the tent we saw a heap of 20 bushels of apples that had just been picked from that tree, and there were many other trees that did equally well, although none of the trees were very large, such as we often see in an old orchard. If the trees should average 10 bushels (and it was estimated that they would do that), there were about 10,000 bushels, at least, of beautiful apples on those 28 acres.

Now to let you know exactly what that means in such a season as the past here in Northern Ohio, permit me to say that, just a few days ago, I saw some Maiden's Blush apples in one of the Cleveland fruitstores marked \$1.25 per half bushel—\$2.50 a bushel for fall apples and not first-class ones at that!

The spraying-apparatus used was there in the orchard, and set at work to let the great crowd see all about how it was done.

All the apples were picked from several of the trees, the wormy ones put in one pile, and those entirely free from worms in another pile; and the same thing was done with trees sprayed and with others not sprayed. I can not recall the figures now; but on one tree that had been thoroughly sprayed for the last nine years in the above approved manner there were only 27 wormy apples. On another tree near by, containing about the same amount of fruit, where no spraying had been done during the past season, there were over 900 wormy apples. It is true the spraying had injured the appearance of some of the Baldwins by making them look a little like russet apples. In order to be sure that this russet appearance was the result of spraying I asked the speaker if there were no russets in other orchards in that neighborhood that had not been sprayed at all. He laughed while he explained that the orchards in that neighborhood, where no spraying had

been done, bore scarcely enough fruit of any kind to show whether they were russets or not.

I can not take space here to tell you all the points that were brought out; but it was very evident that the man who chooses a fair location for growing apples, who keeps posted, and avails himself of the teachings of our experts, can be pretty sure of having a good crop of apples every year, and particularly so when apples are worth more per bushel than they ordinarily bring per barrel, as is the case this year.

As one of the speakers was absent, our good friend W. I. Chamberlain, of the *Ohio Farmer*, was asked to talk. I hardly need say that Prof. Chamberlain is not only an expert authority, but he is a successful grower, and rarely fails to have a big crop of nice apples. Friend Schmitkons was ahead of him, however, this season. Prof. Chamberlain's first point was one that interested me particularly. He said, "If this were my orchard I would pick all of these apples inside of a week, even if it cost me \$500 to do it." Then he gave his reasons for picking Baldwin apples as early as the first week in October. Last year a terrible storm and blizzard ruined a crop of his apples—something like 5000 bushels—in his own orchard in Hudson, O. Of course, the apples that were knocked off and dropped on the grass were picked up and sorted, and sold at a reduced price; but his advice to some of us who had had some sad experience was to pick the apples as soon as they were fairly colored up. Some growers recommend picking the best-colored ones first, and the remainder at a later date. I know by my own experience that many beautiful apples are reduced to the price of windfalls unless picked early.

Oh, yes! Do some of you feel like suggesting that I made a blunder in my heading? Well, all the above is just a preface to what I have been wanting to say for some time past. You may be aware that for several years I have been testing medicines—not only those that are left on our doorsteps but those that are advertised to perform such "great wonders." By the way, I have a dreadful of new remedies that I have been proposing to test whenever I should happen to have an attack of this, that, or the other malady. I think it has been some time, however, since I have gone to that drawer. First, I have been so well that I have had no occasion to handle them. Second, I have come to the conclusion that God never intended we should get relief from our pains and aches by taking drugs. When you have an earache or toothache coming, or stomachache, instead of going for a bottle or some pills, just say, "Lord, help me to learn the lesson that this pain is intended to teach me." Well, I have found some medicines that cured. There is a headache powder, for instance, that cures my headache, or even toothache, in only four or five minutes without fail. But I have stopped using it. It disturbed my digestion, and got things out of shape in some other ways. It is like the strong coffee I talked

about; and I have decided—at least for myself—that it is not what God intended we should use when we have aches and pains.

For many years I had a notion that fruit was bad for me; and it would be bad for me now if I kept taking a bite between meals and at all hours of the day. But I have made a wonderful discovery, and one that I thank God for almost daily in the line of fruit-eating. Years ago my good friend Dr. Salisbury (of the lean-meat diet) remarked that some people found it beneficial to eat a nice ripe apple just before going to bed, as that would cause a movement of the bowels early in the morning, and thus obviate the necessity of pills or physic. Two or three years ago I found out that an apple some time during the evening assisted rather than hindered digestion during the night; and later on I found that two or three apples taken at the same time, if they were ripe and mellow, did not do a bit of harm, but, on the contrary, they help me to sleep. Now, I think one explanation to this is that by degrees I got into a fixed habit of taking all my fruit during the day, say between seven and eight in the evening; and sometimes Mrs. Root and the children would say I would surely get sick, especially when I was very apple-hungry or we had some extra nice apples. But they now all give up and say that the plan is certainly all right for me, and conducive to the excellent health I now enjoy. Our good friends at Battle Creek, Mich., insisted some time ago that *anybody* could eat fruit without any after-inconvenience providing he made a whole meal of fruit and nothing else; and with me the last meal of the day is entirely fruit—usually apples; and I enjoy my fruit meal so much that it is a positive fact that I look forward to the time in the evening when I can enjoy my plate of apples as I look over my exchanges.

And let me say once more in closing, that, after an experience of over sixty years in testing different remedies, I have settled down to the conclusion that "the best medicine in the world" for me is nice ripe apples. May God be praised for having given his beloved children this delicious and wholesome fruit in such great plenty.

Now, to enjoy fully this precious gift you must grow the apples on your own trees. Have trees that ripen in succession—Yellow Transparent, perhaps, for the first; then Red Astrakhan; then Maiden's Blush; and I greatly enjoy having a tree of the old-fashioned Rambo and Golden Pippin; and, later on, the Gravenstein, and so on.

At the time of my last visit to the cabin in the woods I found a beautiful and thrifty Yellow Transparent tree just beginning to bear, that had five great beautiful apples all in a cluster. The largest one in the lot had spoiled because I did not get around to pluck it; but the other four were not only the handsomest apples I ever saw, but they were to my taste delicious, and I do not know but I shall have to call them the *most* delicious fruit God ever gave to mankind.

Now, to enjoy fully this great gift you will

need to watch the apples from the time they blossom until they are fully ripe, and at their best; and do not forget to *thank God* while you enjoy the apples grown around your own home on your own trees.

Heigh-ho! Here comes some backing to what I have just been saying to you, from a very unexpected source. I clip the following from the *Rural New-Yorker*:

It seems that John D. Rockefeller is an active member of the Apple Consumers' League. That explains several things which have often bothered us. We have often wondered how Mr. Rockefeller could keep his health so vigorously, carry his great wealth without breaking down with it, and endure with such composure the savage assaults made upon him by the newspapers! It is now all made clear—he is a thirty-third-degree apple-eater. His five apples a day have brought him a large measure of health and philosophy. Further, we commend Mr. Rockefeller's example in giving apples away. Instead of handing out a cigar or offering a drink, why not say, "Have an apple?"

The concluding suggestion meets my most hearty approval. For years I have been pained to notice the fashion of giving out cigars, or, worse still, treating the crowd when a baby comes into the family, or somebody gets married, or something of that sort. Yes, I have known men who did not use cigars themselves at all, and who were opposed to the use of tobacco, feel that it was incumbent on them to treat to the cigars, just because a baby had come into their home. May God forbid that this fashion should go any further. The present wave against intemperance will probably result in doing away with treating to drinks on such an occasion. And now, friends, does not the idea strike you favorably of starting a fashion of having a young father, or, if you choose, a bridegroom, fill his pockets or a basket or a barrel, with choice apples, and then let a nice apple take the place of the cigar when congratulations are in order? Mr. Rockefeller has certainly done some good in this world of ours if the credit belongs to him for encouraging the fashion of giving away apples instead of tobacco or strong drink.

WYOMING AND IDAHO FOR BEES.

THE Wyoming *Stockgrower and Farmer*, published at Cody, contains, in its issue for October 17, a very interesting letter from Mr. W. W. Turner, a local bee-keeper who has been very successful in his bee-keeping operations, and other reports sent to this office go to prove Wyoming is an extra-good country for bee-keeping. Large irrigation projects are being pushed ahead, which, of course, will be for the benefit of bee-keepers. No doubt Wyoming will soon be a worthy rival of Colorado as a honey State. Idaho, too, is making rapid progress, chiefly on account of the enormous area of land being placed under irrigation. Near Twin Falls, 920,000 acres will shortly be under irrigation, and great developments are going on elsewhere over the State. Idaho is very well supplied with rivers fed by perpetual snows, so that the opportunities for irrigation are great.

W. K. M.

FOR SALE.—Choice table honey, heavy body, fine flavor, aster-buckwheat blend; 60-lb. cans, \$5.00 each. Inquire H. M. WEST, N. Kingsville, Ashta. Co., O.

FOR SALE.—3000 lbs. strictly pure fancy extracted honey in 60-lb. cans at 12½ cts. f. o. b. here. -ample 10 cts. H. A. ROSS, 1709 Upper Sec. St., Evansville, Ind.

FOR SALE.—Choice buckwheat and clover honey, in 60-lb. jacketed cans, at 9 cts. for clover and 7 for buckwheat. G. H. ADAMS, Schenectady, N. Y.

FOR SALE.—Light-amber fall honey, in barrels and 60 lb. cans; also white alfalfa in 60-lb. cans, two in a case. Write for prices to
DADANT & SON, Hamilton, Ill.

FOR SALE.—One ton amber and buckwheat comb honey at \$3.00 per case, 24 sections, in glass-front case; 18 light-weight cases at \$2.50 per case; also dozen cases extracted. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Fancy white comb honey; also extracted basswood, white clover, alfalfa, and amber honey in barrels or 60-lb. cans.

ROBT. A. HOLEKAMP & SON,
4263 Virginia Avenue, St. Louis, Mo.

FOR SALE.—5000 lbs. of white-clover and basswood extracted honey in new 60-lb. cans at 10 cts. per lb. by the case, or for the entire crop. Two cans in a case. Cash must accompany order. This honey was left on the hives all summer and is of finest quality.

LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

Honey and Wax Wanted.

WANTED.—White extracted honey. Give price and particulars in first letter. D. E. LHOMMEDIEU, Colo. Story Co., Iowa.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, No. 5343 Hudson Boulevard, North Bergen, N. J.

WANTED.—Comb. extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy basswood, clover, and amber extracted honey for cash. Best prices paid. Send sample, and quote price delivered in Preston M. V. FACEY, Preston, F'llmore Co., Minn.

WANTED.—No. 1 and fancy comb honey; 4x5x1½ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price. C. M. CHURCH, Arnold, Pa.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LaRUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each. GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth \$1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineson, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN and CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4428 Osage Ave., Philadelphia, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for \$1.00; an extra select breeder for \$2.50. I have had 12 years' experience at queen-breeding. Address

SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Convention Notices.

The Michigan Bee-keepers' Association will hold its annual meeting at Saginaw, the first session being on Wednesday evening, Dec. 18, and the last one on Friday afternoon, the 20th. Headquarters will be at the Sherman House, at which the special rate of \$1.50 per day has been secured. Among the speakers will be R. F. Holtermann, of Brantford, Ont.; L. A. Aspinwall, Jackson, Mich.; E. D. Townsend, Remus, Mich.; W. J. Manley, Sandusky, Mich., and W. Z. Hutchinson, Flint, Mich.

An exhibit of honey and wax will be made, and premiums are as follows:

Best single section of comb honey, one Advance bee-veil by The A. G. Woodman Co., Grand Rapids.

Best six sections of comb honey, 500 sections by The A. G. Woodman Co.

Best 5 lbs. of beeswax, one Hilton hive by Geo. E. Hilton, Fremont, Mich.

Best 5 lbs. of extracted honey, choice of one year to Bee-keepers' Review or one copy of Advanced Bee Culture by W. Z. Hutchinson, Elint, Mich.

Best suggestion or plan offered to increase membership of the association, the same to be in writing, and not more than 150 words, one copy of *de luce* edition of the new A B Culture. M. H. Hunt & Son, Redford, Mich. For further information write to

ELMORE M. HUNT, Redford, Mich.

NEW YORK STATE BEE-KEEPERS' CONVENTIONS.

A series of bee-keepers' meetings will be held in this State as follows: Mt. Morris, Dec. 9; Canandaigua, Dec. 10 11; Auburn, Dec. 12; Syracuse, Dec. 13; Fulton, Dec. 14; Watertown, Dec. 16, 17; Amsterdam, 18, 19; Albany, Dec. 20; Glens Falls, Dec. 21. Mr. C. Stewart, of Sammonsville, N. Y., has been designated as conductor, and he will be present at all of the meetings. The annual meeting of the New York State Association of Bee-keepers' Societies will be held at Amsterdam, Dec. 18, 19. All interested in bee-keeping are invited to attend these meetings.

Romulus, N. Y.

C. B. HOWARD, Sec.



SUNDAY SCHOOL TIMES.

There is no weekly home paper for the moral and religious nourishment of the family that will equal the *Sunday School Times*. It is especially helpful to Sunday-school teachers and others interested in Bible study. We can supply it clubbed with GLEANINGS at \$1.75 for the two, the regular price of each being \$1.00.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is \$2.10 per crate; 12 to crate, \$1.90; galvanized bound, 12 to crate, \$2.50. A corresponding advance is made in wholesale and jobbing prices.

A CORRECTION.

On page 1450 of our last issue Mr. Henry Stewart is made to say that his yellow sweet clover grew six feet while it should have been only six inches. The footnote, made by A. I. R., was on the supposition that it was six inches, hence it does not seem to correspond with Mr. Stewart's statement. The trouble arose from the fact that neither inches nor feet was written, and the two little dots representing inches were overlooked.

WHITE-SWEET-CLOVER SEED.

We have secured a pretty good stock of unhulled white-sweet-clover seed. We find in several instances a large local demand for the seed at better prices than we have been selling at, and that, in order to make it an object for those able to gather the seed to do so, we shall have to pay better prices than we have been doing in former years. Our stock of seed secured for the coming season is little more than half what we had a year ago. We are obliged, therefore, to raise our selling prices to 25 cts. per lb., postpaid; 15 cts. where shipped with other goods; \$1.30 for 10 lbs.; \$11 00 per 100 lbs.; hulled seed at 8 cts. per lb. extra.

REMITTANCES FOR ORDERS AND ACCOUNT.

We are under the necessity of asking our friends and patrons when making remittances not to send checks on local banks, but to send, instead, either a bank draft on some large city bank, preferably New York or Chicago, or a postoffice or express money order. The tight money market through which numerous sections are passing is making it difficult for us to get credit at the banks for local checks, and in some cases we may be obliged to return them and ask instead for a remittance in one of the forms mentioned above. Where we make payments we almost invariably do so by New York draft. Where you can not remit by any of the methods mentioned, then send money by registered mail. The most approved methods, however, are by bank draft, postoffice or express money order.

DR. MILLER SPLINTS.

We have often had calls for wood splints for use with foundation in brood-frames to prevent sagging, as used and recommended by Dr. C. C. Miller. We have usually made them by sawing them out, and wasted more than three-fourths of the wood in sawdust. We have hit upon a plan of slicing them, thereby saving all the wood, and cheapening the process as well. We can furnish them 8½ inches long for L. frames at 50 cts. per 1000 by mail; 40 cts. shipped with other goods. Small lots at 10 cts. per 100 postpaid. Other lengths can be furnished as well. If shorter, same price in 1000 lots. If longer, add fifty per cent up to 12 inches long.

ALFALFA HONEY, COMB AND EXTRACTED.

We have received in the last two weeks a car each of comb and extracted alfalfa honey. The extracted comes from Utah, and the comb from western Colorado. We are selling the extracted in 60-lb. cans at 10 cts. in single-can lots; 9½ cts. by the case of two cans; five cases or more at 9 cts. per lb.

The comb honey, 24 sections to the case, sells at \$4.00 per case; per crate of 8 cases or more, \$3.80 per case; 25 cases or over, write for prices. No. 2 honey at 30 cts. per case less. We also have some New York and Pennsylvania white comb honey at 18 to 20 cts. per lb., according to quality or grades. We are in the market to buy clover extracted honey. If any of our readers have any to offer, mail sample and write us, stating how much you have, how packed, and what you ask for it.

WAX MOLDS FOR OUNCE CAKES.

There is a very large demand for little cakes of beeswax for various household purposes. You will find that nearly every druggist keeps wax, not only for compounding but for sale. Since the enactment of the national pure-food law there has been a stimulus to the demand for cakes of pure beeswax where, before, a mixture was often used. We have calls for molds for making these small cakes. We have not heretofore had them to furnish. We found something of compact form, and just the right size to hold one or two ounces of wax. They are pressed tin retinned. Price of one-ounce size, 35 cts. per dozen; by mail, 40 cts.; of the two-ounce size, 40 cts. per dozen; by mail, 50 cts. For our trade we put up each ounce cake in a carton, and 32 cakes, or 2 lbs., in a large carton, which sells to the dealer for \$1.00. The price of these cartons depends on the quantity you require and the printing on them. Prices quoted to those interested, on application. For limited local need you can doubtless work up a trade without the cartons.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following second-hand foundation-mills in good condition. We shall be pleased to hear from any one interested. To such we can send a small sample of comb foundation representing the kind of work produced by the particular machine you enquire about.

No. 078.—6x2½-inch hex. cell thin-super mill, in very good condition. Price \$12 00.

No. 079.—6x2½-inch hex. cell thin-super mill, in very good condition. Price \$12 00.

No. 088.—6x2½-inch hex. cell thin-super mill, in good condition. Price \$12 00.

No. 086.—6x2½-inch hex. cell extra-thin-super mill, in good condition. Price \$12 00.

No. 088.—12x2½-inch round-cell heavy-brood mill, in fair condition. Price \$12 00.

No. 082.—10x2½-inch round-cell medium-brood mill, in very good condition. Price \$15 00.

No. 089.—10x2-inch round-cell medium-brood mill, in old-style frame; rather old-style machine in fair condition. Price \$12 00.

No. 090.—10x2-inch round-cell medium-brood mill, in fine condition. Price \$15 00.

No. —.—10x2-inch hex. cell, medium or light brood mill, in good condition. Price \$15 00.

CARTAGE CHARGE ON ORDERS FILLED BY OUR CITY BRANCH OFFICES.

The expense of doing business in our large cities is so great that we can not continue furnishing goods at regular prices free on board cars from our city branch offices. It is a great accommodation to many custom-

ers, especially in the busy season, to be able to secure goods promptly and at lower freight rates from these distributing centers, and I am sure they will be willing to share with us the heavy expenses necessary to make this accommodation possible. Hereafter on all orders from Chicago, New York, Philadelphia, and Washington offices, shipped by freight, a cartage charge of 25 cts. will be made on orders of \$3.00 or less; 35 cts. on orders of \$3.00 to \$5.00; 50 cts. on orders of \$5.00 to \$10.00; over \$10.00 in value, 5 per cent of the bill, or 20 cts. per 100 lbs., if that figures less than the 5-per-cent plan. At New York city the minimum charge will be 50 cts.

These charges do not cover the cost to us, but represent a fair division of the cost.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to \$1.00 each.

B. P. S. paint for hives is advanced to \$1.75 per gallon; 90 cts. per $\frac{1}{2}$ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to $2\frac{1}{2}$ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY FOR DISTRIBUTION.

The new edition of the A B C of Bee Culture has finally, after a great deal of labor, been completed. So far from being merely a work for beginners, or the A B C, it is also an X Y Z of the business, and hence equally valuable to the veterans, for it gives all the latest processes and methods of the most advanced bee-keepers, as well as those that may be used by the novice.

It very often occurs that an experienced bee-keeper has, within a year or so back, read such and such a method for producing comb honey or some one else's plan for the prevention of swarming. He has not kept a file of the journals. He can not remember in what issues those methods appear. On reading them at the time, he determined to give them a further test when the season opened up; but where, oh! where, can he find those journals containing just the articles that describe these methods? Well, the new work has given in brief some of the most important; and all he has to do is to turn to the index and find what he wants boiled down in clear language.

Then, again, it often happens that the bee-keeper hears about the Heddon method of transferring, or reads something about Alexander's method of strengthening weak colonies in the spring. Again, he sees something about the Doolittle or the J. E. Hand scheme for producing comb honey in connection with the divisible-brood-chamber hive. He is all at sea; but the new volume will tell him all about these and more.

But in a scientific way the A B C and X Y Z is far ahead of what it has ever been before. The botanical list of honey-plants has been almost entirely re-written by W. K. Morrison; the chemistry of honey, of glucose, and of nectar are all covered by the same writer.

Mechanically the new edition has been improved by the use of an almost entirely new set of engravings, the old ones being reengraved, and the use of enamelled book paper, the most expensive paper of the kind procurable. This brings out not only the letter-press but the engravings as well to a point of brilliancy and clearness that is pleasing.

But it would take quite a little volume to tell about the new features of this magnificent work, and the reader will have to see it in order to appreciate its merits. While it is nearly 100 pages larger, and all told 300 pages of new matter, the price has been in-

creased only slightly — from \$1.20 by mail to \$1.50, or \$1.25 if sent with other goods. Or in half morocco, \$2.00, postpaid, or \$1.75 with other goods. Full leather, \$2.50, postpaid, or \$2.25 with other goods.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in December, deduct 4 per cent.				
" " " January, " 3 $\frac{1}{2}$ "	"	"	"	"
" " " February, " 3 "	"	"	"	"
" " " March, " 2 $\frac{1}{2}$ "	"	"	"	"
" " " April, " 2 "	"	"	"	"

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.



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Write for this most practical, illustrated, big, free catalog, which will show you how you can succeed best with poultry raising and How to Make Money With Poultry and Incubators. Address nearest office. **CYPHERS INCUBATOR CO.**
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Mt. Mellick Embroidery

Send 10c for a beautiful Mt. Mellick centerpiece on heavy Art Linen, 18 inches square. With it we send free instructions showing over 50 different stitches, and our offer of free shirt-waists, centers, etc., in Mt. Mellick, Wallachian, Eyelet, or Shadow embroidery. **MASON SUPPLY CO., Mechanic Falls, Me.**

W. H. Laws says, If there is a queen-breeder who can boast of better

stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, \$1.00; 6 for \$5.00. Extra select breeders, \$5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co., Texas.

ABC ^{AND} XYZ

— of —

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By A. I. and E. R. ROOT

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Only two years have elapsed since we brought out an edition of 15,000 copies of the well-known A B C of Bee Culture. This brought up the number to 100,000 copies, thereby surpassing in popularity all other bee-books ever printed.

The demand for these has been so great that we were compelled to undertake a new edition at once, and in doing so we took the opportunity to revise and greatly enlarge it again, though it had been generally considered quite a large book.

In doing so we brought in new blood to assist us, give new ideas, and otherwise enable us to produce as good a book as it is possible to make at a popular price. If you will carefully examine a copy you will be prepared to admit the new volume is quite an improvement on its predecessors. To keep pace with improvements it contains nearly 100 double-column pages more than the previous edition.

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